Capitol Region Watershed District Climate Resiliency Framework

2025

Capitol Region Watershed District Climate Resiliency Framework

Saint Paul, Minnesota

Cover image: 2011 Flooding on Larpenteur Avenue, Roseville, Matthew Davis

CRWD Climate Resiliency Framework

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1 Introduction

1.1 Climate Change and Climate Resiliency

Climate change is the long-term shift in temperatures and weather patterns. Such shifts can occur naturally due to changes in the sun's activity or large volcanic eruptions. Since the 1800s, however, human activity has been the primary cause of climate change due to the burning of carbon-based fuels like coal, oil, and gas. Burning carbon-based fossil fuels generates greenhouse gas (GHG) emissions that trap the sun's heat and raise global temperatures.

Climate resiliency, or climate resilience, is the ability of any system to withstand impacts resulting from climate change. This applies to both natural and human communities. Building climate resilient systems requires understanding climate-related risks and vulnerabilities and developing and implementing strategies, behaviors, and infrastructure that mitigate these risks.

Climate resilience applies at a broad range of time scales, including a system's response to extreme weather events (e.g., 100-year storm event) as well as a system's response to changes in climate patterns over time (e.g., increasing annual average temperature).

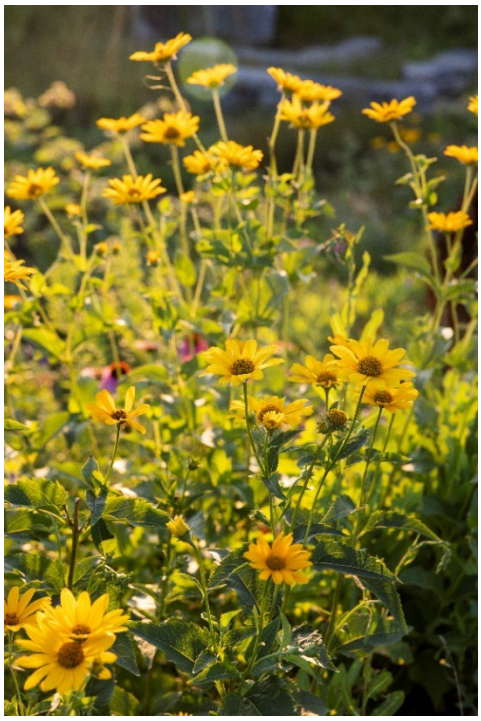


Photo credit: Ackerman and Gruber

1.2 CRWD Role in Climate Change

Climate resilience is a broad concept that applies to a variety of systems including economic, social, and environmental. Some of these areas extend beyond the roles and authorities granted to the Capitol Region Watershed District (CRWD) per Minnesota Statutes 103B and beyond the District's priority issues, goals, and actions defined in CRWD's 2021-2030 Watershed Management Plan (WMP).

Climate Change and Community Resilience is one of the WMP Themes and mitigating the impacts of climate change now and into the future is a high priority for the District, its partners, and stakeholders.

This Climate Resiliency Framework (Framework) addresses resiliency relative to the District's vision and mission—it focuses on strategies and actions that fall within (or adjacent to) CRWD's existing roles and authorities and are consistent with the issues, goals, and actions defined in CRWD's WMP.

The Framework focuses on systems affected by climate change that are directly related to CRWD's work, such as water quality, flooding, ecosystem health, and others. CRWD recognizes the significance of impacts to air quality, wildfires, and other systems; these areas, however, are not the focus of the Framework. The climate change impacts most relevant to CRWD are discussed in more detail in Section 2 and listed in Table 2-2.

CRWD Mission
To protect, manage and improve the water resources of Capitol Region Watershed District.

CRWD Vision
Cleaner waters through innovative, resilient, effective and equitable watershed management in collaboration with diverse partners.

CRWD roles considered in developing this Framework generally fall into the following categories:

- Intercommunity and interagency planning
- Monitoring, assessment, and research
- Communications and engagement
- Regulation
- Stormwater infrastructure operation and maintenance
- Capital projects
- CRWD internal operations

1.3 Purpose of the Climate Resiliency Framework

CRWD recognizes that climate change poses a variety of risks to watershed health and challenges to the effectiveness of CRWD's operations, programs, and projects. CRWD will use this Framework to inform strategies, programs, projects, and other activities that plan for and address local impacts of climate change.

The CRWD Climate Resiliency Framework documents and clarifies the District's role, approaches, and actions it can take to plan for and address local impacts of climate change.

CRWD understands that climate change is driven by many factors including emission of carbon dioxide and other greenhouse gases. This Framework focuses on addressing the local impacts of climate change and does not focus on addressing the causes of climate change beyond those actions that CRWD can implement to limit carbon emissions in its own operations.

This Framework identifies and focuses on those activities, programs, and projects for which CRWD is likely to be the lead (or co-lead) entity responsible for implementation. Other agencies and organizations have identified actions they plan to take to address climate impacts and climate resiliency. CRWD reviewed many of these plans in developing this Framework (see Appendix B). This Framework is intended to complement, and not duplicate, the efforts of CRWD's local, regional, and state partners.

A "framework" is a guide or outline. This framework identifies strategies and general activities at a planning level; further work planning beyond this Framework is needed to define specific tasks for implementation (in coordination with WMP implementation).

This Framework is consistent with and supports CRWD's WMP. The WMP includes prioritized implementation activities to achieve measurable goals related to several priority issues. Many of these issues are exacerbated by the local impacts of climate change. Activities included in this Framework (see Section 4) are intended to inform, augment, or increase the effectiveness of WMP implementation.

This framework is intended to guide the District's next five years of climate resiliency planning, although changing climate conditions and our growing understanding of impacts and solutions may necessitate adjustments before the end of this time period. After 2030, CRWD will incorporate the Framework's climate resilience goals and activities into the District's Watershed Management Plan.

1.4 Relevant WMP Themes

CRWD's 2020 WMP includes nine Themes that are considered in every aspect of the District's work, including Climate Change and Community Resilience itself. Five of the remaining Themes are especially relevant to the Climate Resiliency Framework. The breadth of WMP Themes that relate to climate change demonstrate how relevant climate action is to CRWD's work. For example, Adaptive Management is a relevant theme to this Framework because climate change and resilience are evolving issues, so changing conditions and our growing understanding of impacts may necessitate adjustments to our actions.

The WMP Theme of Community Equity and Engaging Underrepresented Groups is closely tied to CRWD's 2020 Diversity, Equity, and Inclusion Plan (DEI Plan). Climate change impacts residents differently across our District. Some individuals, organizations, and communities bear disproportionate impacts of climate change and may also have fewer resources to recover from and adapt to these impacts. CRWD will ensure that our climate resilience activities support the goals of the DEI Plan including community equity.

The WMP themes most relevant to this Framework (omitting Climate Change and Community Resiliency) are shown below.

Community Equity and Engaging Underrepresented Groups

The District values diversity, equity, and inclusion and can achieve cleaner waters through engagement across communities. Historically, fewer District projects have been implemented in some areas and communities within the watershed have been underserved. Engaging residents in the central and eastern portions of the District, people of color, immigrants, young adults, those who are poor, and youth will be a focus during the implementation of the WMP and this Framework.

Partnerships

The successful implementation of CRWD projects and programs is due, in large part, to the emphasis on partnerships. The District is well- positioned to convene stakeholders including cities, government agencies, institutions, neighborhood groups, residents, and others to address common goals. The District will continue to leverage such partnerships to more effectively and efficiently implement its programs and projects.

Innovation

Technology and innovative water resource management methods have become mainstays in the District's work and are continually evolving. The District seeks to remain informed about advances in science, design, and engineering related to water resource management. The District will evaluate the practical application of such innovations in its operations, programs, and projects.

Adaptive Management

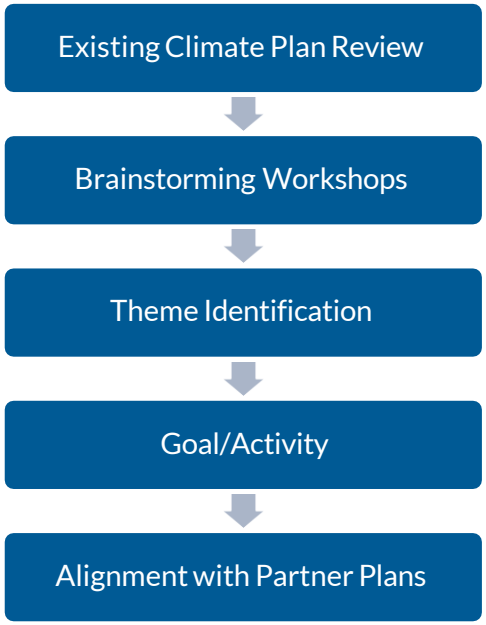
Over the next 10 years, changing conditions may necessitate adjustments to the District's planned activities. The District recognizes this inevitability and will use an adaptive management approach to make decisions about District operations, programs, and projects.

Rain as a Resource

The District is a highly urbanized environment that generates significant amounts of stormwater runoff, leading to flooding and water quality impacts. CRWD seeks to offset these impacts by maximizing the natural water retention, storage, and infiltration capacity of the watershed. By using rainwater as a resource and keeping precipitation and runoff on the landscape, the District can minimize the negative local and downstream impacts as precipitation trends continue.

1.5 Framework Development Process

CRWD developed this Framework through an iterative process of information gathering, brainstorming, and refining to arrive at the goals and actions presented in Section 4. Initial tasks focused on review of existing climate resiliency plans and soliciting input from CRWD staff, Board of Managers, Community Advisory Committee (CAC), CRWD partner staff, and watershed residents (see Section 3). CRWD considered this information in developing and revising Framework themes, goals, and activities (see Section 4), and aligning those activities with those of local partners (see Section 5).



2 Climate Trends and Relevant Impacts

2.1 Climate Trends

Climate change in Minnesota and the upper Midwest is an established and documented phenomena. Trends observed in Minnesota, including CRWD, include:

- Extreme precipitation
- Warming, heat and humidity
- Warming winters
- Drought

These trends are anticipated to continue and, in some cases, accelerate in the coming years as a result of climate change (Coffman et al., 2024).

Sources for Minnesota Climate Change Information:

Climate Change and Minnesota | Minnesota DNR

Climate Change Impacts | Minnesota Pollution Control Agency

What Climate Change Means for Minnesota | EPA

2.1.1 Extreme Precipitation

CRWD will continue to experience more wet conditions caused by increased total annual precipitation and increased frequency of intense rainfall. Data from Minneapolis-St. Paul International Airport (MSP) show an increasing trend in average annual precipitation recorded over 30-year climate normal periods, from approximately 26 inches measured from 1951-1980 to nearly 32 inches measured from 1991-2020 (MDNR, 2025) (see Figure 2-1).

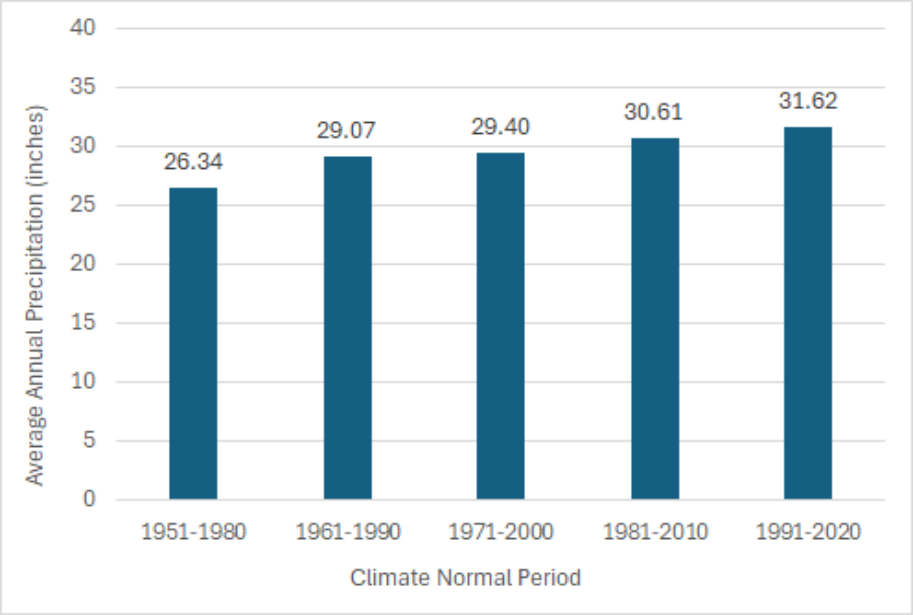


Figure 2-1 Increasing Trend in Climate Normal (i.e., 30-year) Average Annual Precipitation

Precipitation increases are greatest in the spring and summer but are occurring in all seasons. In addition to increases in total precipitation, the intensity and frequency of large events have also increased, with significant potential impacts on CRWD's stormwater management roles. The number of "very heavy" rainfall events in St. Paul increased from 78 such events from 1951-1980 to 112 such events from 1981-2010 (a 44% increase) and 121 events from 1991-2020 (a 55% increase) per daily precipitation data collected by the National Weather Service (NWS) as MSP (see Figure 2-2). "Very heavy" rains are defined as daily precipitation totals exceeding the size of the heaviest 1% of storms as defined by the 1951-1980 period (1.25 inches). The heaviest 1% of storms measured over the 1981-2010 and 1991-2020 periods increased from 1.25 inches (1951-1980) to 1.38 inches and 1.47 inches, respectively.

Average annual snowfall measured by the National Weather Service at MSP does not demonstrate a significant trend between climate normal periods (50 inches during the 1951-1980 period and 52 inches during the 1991-2020 period). Rising winter temperatures, however, can affect the impact of snowfall amounts (see Section 2.1.3)

Although total annual precipitation has been increasing, periods of drought are also anticipated to increase because of climate change (see Section 2.1.4).

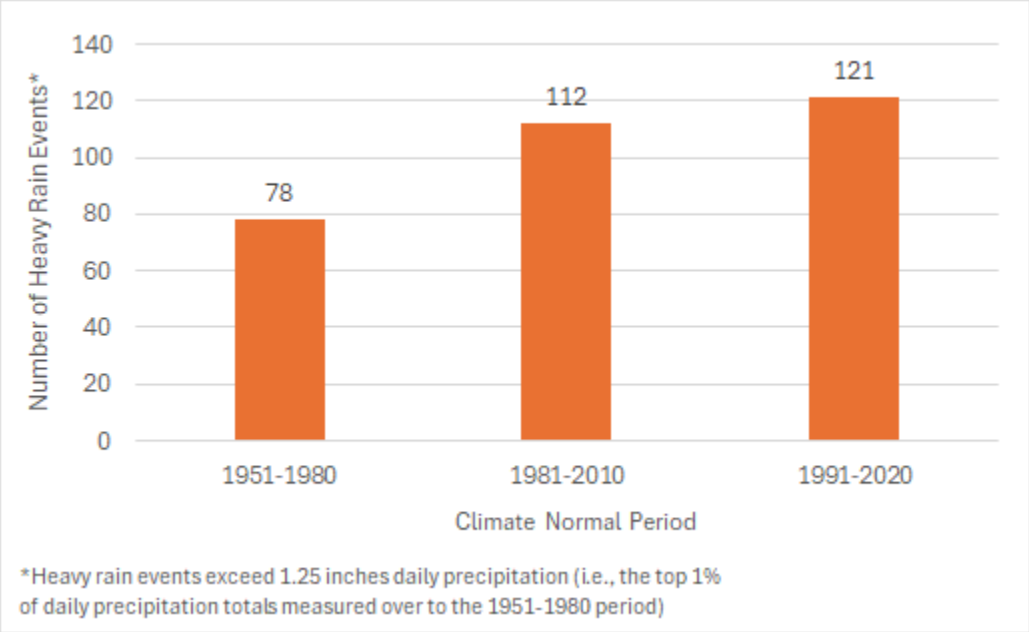


Figure 2-2 Increase in Heavy Rains Frequency between 1951-1980 and 1981-2010

2.1.2 Warming, Heat, and Humidity

Annual averages of daily maximum temperatures in the Twin Cities Metro Area are slowly increasing. Annual average temperatures in the Twin Cities warmed by 3.2°F from 1951-2012 (GLISA, 2016). Models project daily average and maximum temperatures will continue to rise by 3-4°F in the region through mid-century (Coffman, et al., 2024).

Climate scenario projections estimate that the frequency and magnitude of hot days, warm nights, and heat waves are likely to increase by mid-century. Humidity is also increasing. Increased heat and humidity are favorable conditions for severe storms with high wind, hail, or tornados. The frequency of severe weather events is projected to increase beyond mid-century, with the number of days exceeding 90°F expected to increase by 11-17 days by mid-century depending on the forecast (Coffman et al., 2024). From 1991-2020, St. Paul experienced approximately 10 days greater than 90°F per year.

2.1.3 Warming Winters

Average winter temperatures (December through February) increased by about 4.5°F from 1951-2012 (GLISA, 2016), increasing from 14°F during the 1951-1980 climate normal period to nearly 18°F as measured over the 1991-2020 climate normal period (MDNR, 2024) (see Figure 2-3). This trend is accompanied by a decrease in the number of days with low temperatures below 32°F (see Figure 2-4).

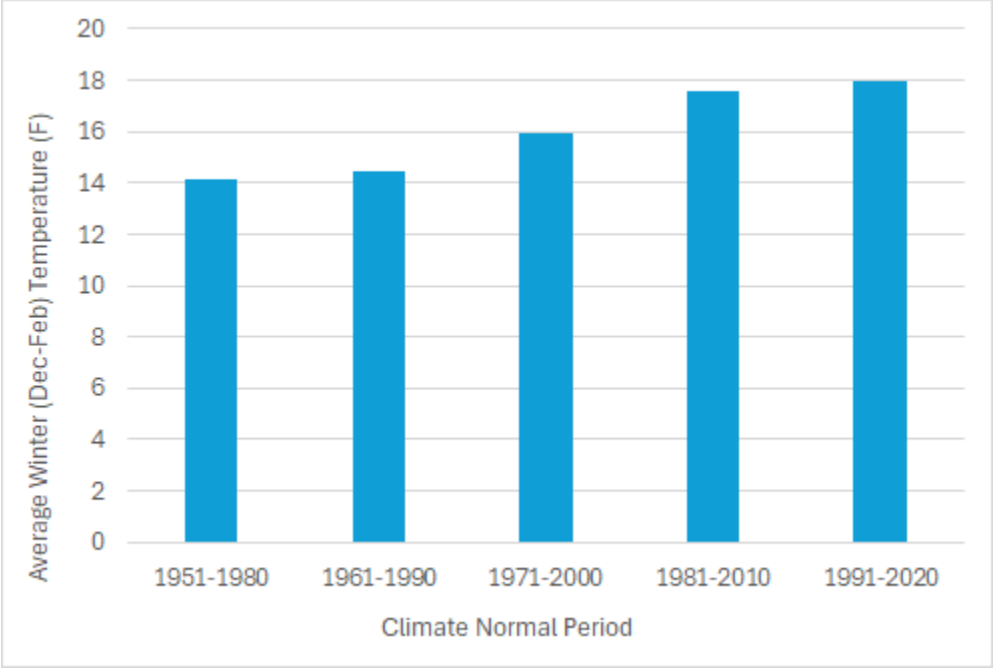


Figure 2-3 Increasing Trend in Average Winter (December-February) Temperature

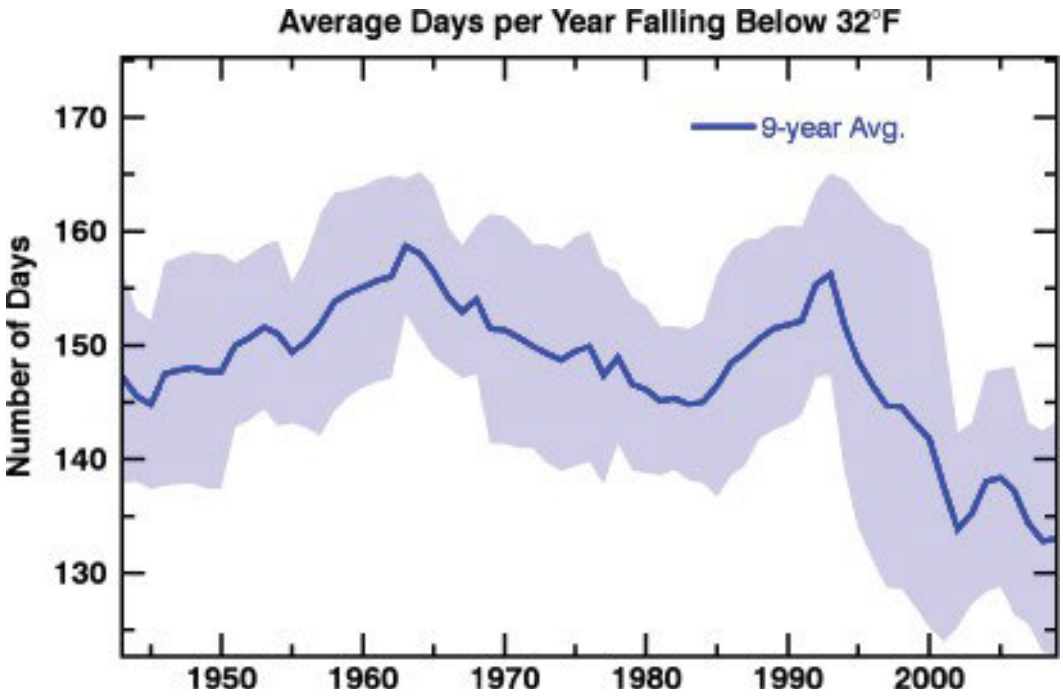


Figure 2-4 Average Days per Year with Lows Below Freezing

With increased winter temperatures come more freeze-thaw cycling and less consistent lake ice cover. Although average annual snowfall is steady or increasing, warmer winter temperatures result in less snow cover, shorter snow-cover season, and decreased snowpack thickness. Forecasts estimate the number of days per year with low temperatures below freezing may decrease by 21-24 days by mid-century (2040-2059) (Coffman et al., 2024). The length of the growing season (freeze-free season) has increased by 16 days from 1951-2012 (GLISA, 2016).

2.1.4 Drought

Several historic droughts have occurred in the Twin Cities Metro Area dating back to mid-1800s (including the 1930's Dust Bowl). The Minnesota State Climatology Office notes some possibility of increasing drought conditions by the mid-century (based on projections in the 2014 (Third) National Climate Assessment). Cycles of multi-year wet and dry conditions are historically common. However, droughts experienced as part of normal climate variability may result in wider extremes when occurring between periods of increased precipitation totals and/or intensity (see Section 2.1.1). Recently, the wettest decade recorded in the Twin Cities Metro Area (2010-2019) was immediately followed by several years with significant drought conditions, as observed in CRWD's climate monitoring data (see Table 2-1).

Table 2-1 Annual Precipitation (2010-2024) Relative to 1991-2020 Climate Normal

Year	Precipitation (inches)	Departure from 1991-2020 Climate Normal (inches)
2010	36.32	4.70
2011	33.62	2.00
2012	30.26	-1.36
2013	36.36	4.74
2014	35.66	4.04
2015	35.21	3.59
2016	40.66	9.04
2017	31.57	-0.05
2018	29.59	-2.03
2019	38.79	7.17
2020	21.99	-9.63
2021	25.08	-6.54
2022	22.01	-9.61
2023	31.91	0.29
2024	32.12	0.50

2.2 Climate Impacts Most Relevant to CRWD

The four major climate trends described in Section 2.1 have far-reaching potential impacts to built and natural systems. Some of these impacts are more relevant to CRWD's water and natural resource management roles than others.

Table 2-2 lists several impacts and their expected relevance to CRWD. Some of the climate impacts most relevant to CRWD include:

- Impacts to design, maintenance, and operation costs and adequacy of stormwater management infrastructure

- High water levels and associated impacts to structures and ecosystems
- Increased pollutant loading, erosion, and associated impacts to aquatic ecosystems
- Impacts to, and management of, vegetation, including aquatic invasive species
- Increased algal blooms and impacts to aquatic ecosystems from increased water temperature

The anticipated increase in localized flooding and drainage issues resulting from climate change prompted CRWD to develop a Flood Risk Reduction guidance document and update its existing Drainage Assistance guidance (included as Appendix A) and led to the development of the activities listed for Goal 2 (see Table 4-1).

Table 2-2 lists several specific impacts of climate change and the expected relevance of each impact to the roles, responsibilities, and actions of CRWD. The scope of climate change impacts is such that CRWD cannot focus on addressing all of the potential impacts within the watershed. Nor is it appropriate to use CRWD's resources to focus on potential impacts that are more effectively addressed by cities or other partners (e.g., impacts to transportation corridors, drinking water shortages).

Instead, CRWD will focus on building resilience to climate impacts that affect:

- Stormwater infrastructure
- Water resources
- Natural resources

Local impacts of climate change affect resources differently. The vulnerability of a lake, neighborhood, or other impacted system to a particular climate threat can vary according to many factors including economic, social, and environmental. Additional analysis is needed to assess the vulnerability of specific resources and areas within the District.

Extreme precipitation events may overwhelm stormwater infrastructure.

Table 2-2 Climate Change Impacts and their Relevance to CRWD Roles

Climate Trend	Climate Impact	Relevance to CRWD Roles
Extreme Precipitation	Public safety risks during flood events	High
	Increased damage to stormwater infrastructure	High
	Increased design/costs for stormwater management infrastructure	High
	Increased maintenance/costs for stormwater infrastructure	High
	Higher peak water levels on lakes and ponds	High
	Increased influx of pollutants from runoff	High
	Increased potential for mobilization of soil pollutants	High
	Increased erosion from runoff	High
	Increased fluctuations in water levels	High
	Longer periods of high water levels	High
	Increased damage to private property/recovery costs/insurance costs	Medium
	Disrupted use of public spaces/recreational resources	Medium
	Community financial loss due to loss of use	Medium
	High groundwater from prolonged wet periods	Medium
	Expansion of wetland and pond areas	Medium
	Impacts to transportation/access/road closures	Low
Warmer winters	Increased freeze/thaw leading to increased salt use	High
	Changes in hydraulic performance of BMPs	High
	Increased freeze/thaw stress on stormwater infrastructure	High
	Increased survival of AIS	High
	Introduction/proliferation of "new" AIS	High
	Longer growing season and impacts plant management	High
	Shift towards warmer water fish species, impacts on spawning	Medium
	Stress on terrestrial plants	Medium
	Increased ice impacts to work-related travel (to office or job sites)	Low
	Impacts to lake-ice affecting recreation (e.g., ice skating)	Low
Warming, Heat, Humidity	Increased algal blooms in lakes and ponds	High
	Loss/decrease of urban forest canopy	High
	Stress/degradation of natural areas/vegetation	High
	Increased heat-related health issues exacerbated by urban heat island	Medium
	Increased heat stress exposure for outdoor workers	Medium
	Potential decrease in net groundwater recharge	Medium
	Decreased air quality due to wildfires and atmospheric impacts	Low
	Increased energy use/cost for climate control systems	Low
Drought	Lack of water may limit effectiveness of water reuse systems	High
	Dry surfaces accumulate sediment/ pollutants carried in "first flush" runoff	High
	Dry conditions stress vegetation/green space health	High
	Prolonged low water levels can exacerbate AIS	High
	Increased sediment and pollutant runoff from dry/damaged topsoil	High
	Increased design/costs for stormwater management infrastructure	High
	Increased vegetation maintenance/costs for stormwater infrastructure	High
	Groundwater use can impact water supply sustainability	Medium
	Prolonged low water levels can negatively impact fish	Medium
	Water shortages may result in public restrictions	Low

3 Information Gathering

This section summarizes Framework development tasks focused on gathering information and partner input. Complete results of these efforts are included as appendices to this Framework.

3.1 Climate Plan Review

Many local, regional, and state government organizations have prepared plans addressing climate vulnerability or climate action. CRWD reviewed the following plans to identify goals, strategies, and actions relevant to CRWD roles and potential climate resilience-related activities:

- State of Minnesota Climate Action Framework (2022)
- Ramsey County Climate Action Equity Plan (2024)
- Hennepin County Climate Action Plan (2021)
- Metropolitan Council Priority Climate Action Plan (2022)
- Saint Paul Climate Action and Resilience Plan (2019)
- Falcon Heights Climate Action Plan (2025)
- Maplewood Climate Action/Adaptation Plan (2021)
- Roseville Population Vulnerability Assessment and Climate Adaptation Framework (2018)
- Minneapolis Climate Equity Plan (2023)
- Minnehaha Creek Watershed District Climate Action Framework (2022)
- South Washington Watershed District Climate Resiliency Plan (2018)
- Great Lakes Indian Fish and Wildlife Commission Tribal Climate Adaptation Menu (2019)

The above documents vary in content based on the roles and responsibilities of the author entity. Some of the content is more relevant to CRWD (e.g., green infrastructure, community resilience), and other content is less relevant (e.g., transportation, public health, economic development). The documents also vary in level of detail; some documents present high level strategies while others contain more specific actions.

CRWD identified strategies and actions from these plans that would likely be relevant to potential CRWD climate resiliency actions. Appendix B presents a summary of the document review. While developing the goals and activities of this Framework (see Section 4), CRWD considered the plan review results to identify potential partnership opportunities.

3.2 Workshops and Public Engagement

CRWD project staff initially hosted workshops with several stakeholder groups to gather ideas about what actions CRWD and/or its partners can take to address local impacts of climate change and increase climate resiliency. These groups included a subset of CRWD staff, a technical advisory committee (TAC), CRWD's Community Advisory Committee, CRWD's Board of Managers, and the general public. Workshop programming focused on answering questions such as the following (tailored to each audience):

- What is CRWD already doing to build climate resilience?
- How can climate resilience be added to existing CRWD practices?
- What is CRWD's role in addressing climate resilience?

- What new actions can CRWD do to address climate resilience?
- How can CRWD support partner actions to address climate resilience (and vice versa)?
- How do CRWD actions align or conflict with other plans/goals?

CRWD staff engaged these groups at multiple points during Framework development as ideas were developed and refined.

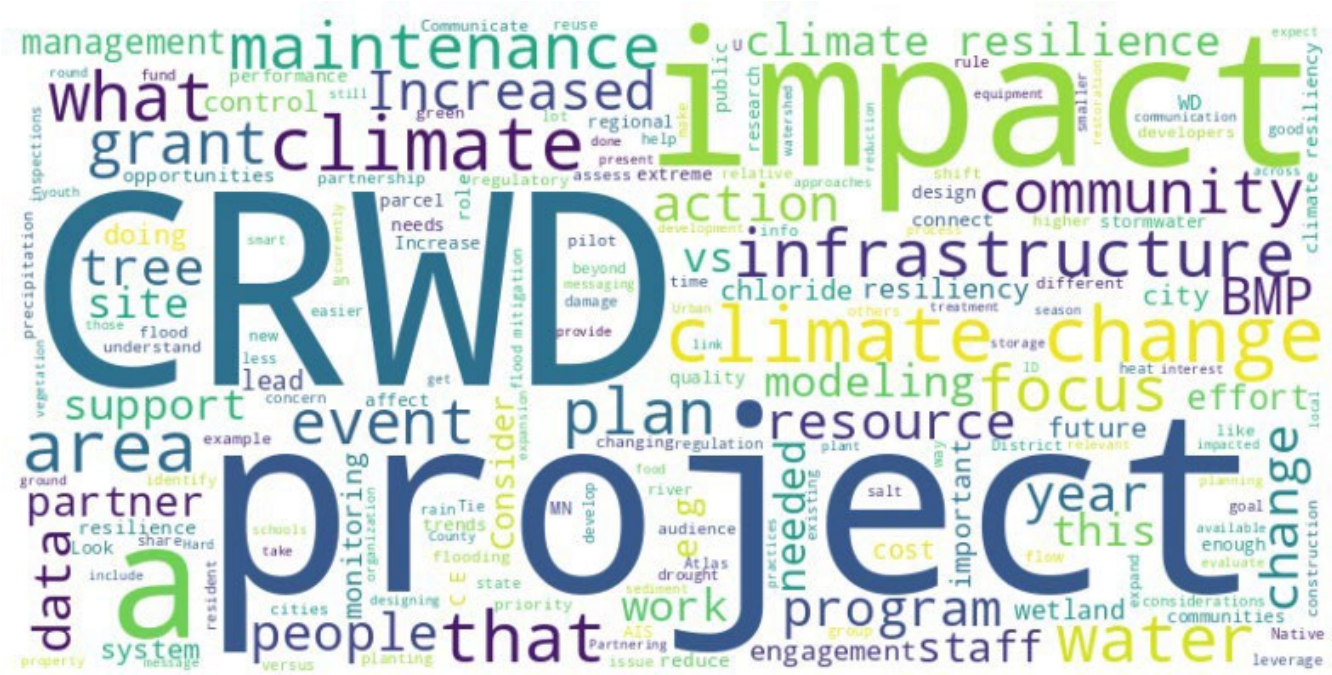


Figure 3-1 Word Cloud based on CRWD staff, Board of Managers, CAC, and TAC workshops

3.2.1 CRWD Staff Workshop

CRWD held a workshop with a subset of staff in July 2024 to discuss climate resiliency. Workshop programming included discussion about local climate impacts and potential mitigation actions in small groups focusing on the following categories (based on CRWD organizational divisions):

- Communications and Engagement
- Monitoring, Research, and Assessment
- Projects, Programs, and Infrastructure Maintenance
- Regulation
- Administration, Operations, and Others

Small groups rotated through the topic areas, so all staff had the opportunity to comment on each topic. Comments were classified as issues or actions and tagged with one or two keywords. The most common keywords among the comments included:

- Engagement
- Rule updates
- BMP performance
- Adaptive management

Appendix C contains the complete results of the CRWD staff workshop. CRWD developed four broad

themes based on the results of the staff workshop (see Section 4.2.1). The Framework themes, detailed in Section 4.1, are:

- Increasing our understanding
- Addressing today's impacts
- Designing for the future
- Supporting through collaboration

Additional staff input was incorporated into Framework development during the Goals and Activities development stage, as well as during draft Framework document review.

3.2.2 Community Advisory Committee Workshop

CRWD hosted a workshop with its Community Advisory Committee (CAC) in August 2024. At the workshop, staff presented a brief background on climate resiliency and the objectives of the Framework and introduced the four themes previously developed (see Section 4.2.1). CAC members shared input on local climate impacts and issues. Staff classified CAC comments according to the theme most closely reflected and assigned one or more keywords to each comment. CAC comments identified several topics frequently cited in the CRWD staff workshop (see Section 3.2.1), including a strong emphasis on engagement. Appendix C includes comments received from the CAC.

CAC members also had an opportunity to provide input on draft Goals and Activities and review the draft Framework document.

3.2.3 Public Engagement

CRWD staff conducted a two- question survey on climate impacts and resiliency at three community events in summer 2024. These events included the Wakan Tipi Awanyankapi Pollinator Festival, the Peace Celebration, and the Rice-Larpenteur Alliance Summer Block Party. The survey asked participants to share whether they had experienced any of the five pre-identified climate impacts and classify that impact as high, medium, low, or none (see Figure 3-2).

The survey also asked participants to identify how CRWD can help the community prepare for and adapt to the impacts of climate change listed in the survey.

CRWD engages the public at a pollinator event.

CRWD received over 180 responses to the survey. Survey results were generally aligned with the issues and actions already identified by CRWD staff. Climate impacts categorized as having high relevance to CRWD roles (see Section 2.2) were correlated with high impact felt by the public. Appendix C contains results of public surveys.

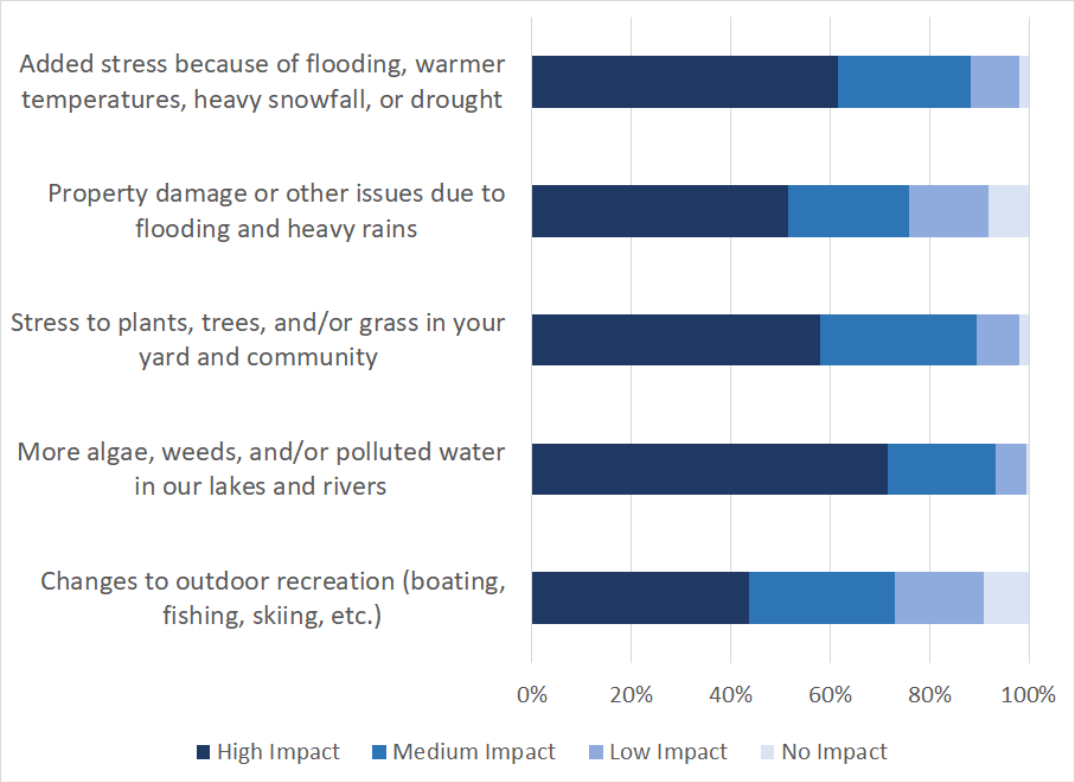


Figure 3-2 Climate Impacts Experienced by CRWD Residents (Survey Results)

3.2.4 Board of Managers Workshop

CRWD staff presented to the Board of Managers in September 2024 and shared outcomes of Framework development efforts completed prior to that date. Questions to the Managers included:

- Which water-related impacts due to climate change are most important to you, your neighbors, and your community? Are there any impacts missing from this list?
- What activities or actions could be prioritized?

Appendix C contains comments shared by the Board Managers. Many comments focused on community engagement and opportunities for coordinated planning and projects with partners. CRWD staff considered Board Manager input while developing draft goals and actions (see Section 4).

Board managers also had an opportunity to provide input on draft Goals and Activities and review of the draft framework document.

3.2.5 Partners (Technical Advisory Committee)

CRWD hosted a workshop with a technical advisory committee (TAC) in October 2024 comprised of staff from local, regional, and state partners. Workshop participants met in small groups to brainstorm actions they would like to see CRWD pursue related to climate resilience. Several actions identified by the TAC focused on filling climate resiliency gaps, including hydrologic and hydraulic modeling, monitoring, and data collection. Appendix C presents the results of the TAC workshop.

TAC participants also voted on the priority of approximately 12 draft goals developed by CRWD staff which built off of input collected from prior public engagement and workshops. The TAC had an additional opportunity to provide input related to Goals and Activities and review the draft Framework document.

4 Themes, Goals and Activities

This Framework documents the District's role, approaches, and activities it can take to plan for and address local impacts of climate change. To arrive at appropriate activities, CRWD first identified the important issues and impacts. Discussion first led to themes, followed by goals, and then activities linked to those goals and themes.

During goal development, CRWD staff, Board Managers, and the TAC provided input on draft goals and actions, leading to the consolidation of goals and addition, deletion, and revision of activities. Table 4-1 presents the final iteration of goals and activities.

4.1 Climate Resiliency Framework Themes

Through the initial brainstorming workshops, the questions asked, and actions identified by workshop participants demonstrated consistent themes. Each of the activities listed in the Framework Goals and Activities table falls into one of these four topic categories.

- **Increasing our understanding** – Climate change and its associated impacts is an evolving issue. Although trends have been observed and forecasted, the practical impacts of those trends on the natural and built environments within the watershed are not well understood. A more thorough understanding of local climate change and the effects it will have on our work is needed to identify and prioritize activities with the greatest potential benefits within CRWD and in our larger community. Monitoring, modeling, and community engagement may help address these gaps in understanding.
- **Addressing today's impacts** – The watershed is already experiencing climate impacts originating from more frequent extreme precipitation events, increased freeze-thaw cycles, and more (see Section 2.1). These impacts can affect the performance of CRWD and partner projects and infrastructure that were not originally designed for such conditions. CRWD will assess the performance of existing projects, identify issues, and make changes where needed.
- **Designing for the future –** Prevention is usually more efficient than correction. Developing strategies that promote resiliency and incorporating those strategies into future CRWD projects, programs, and operations will minimize the consequences of future climate trends.
- **Supporting through collaboration –** Many organizations are addressing impacts of climate change in their respective work. The District is well-positioned to convene stakeholders including cities, government agencies, institutions, neighborhood groups, residents, and others to address issues collaboratively. Supporting CRWD's partners in their climate

resilience efforts and aligning our own work with the work of others will lead to more efficient and effective climate resilience solutions.

Monitoring staff evaluate winter precipitation conditions.

4.2 Framework Goals

The issues and impacts identified through document review and initial workshops (see Section 3) led CRWD staff to identify approximately 12 initial goals. The draft goals were refined and combined to arrive at the final five goals listed below and included in Table 4-1. Each goal is supported by multiple activities presented in Table 4-1; while some activities may support multiple goals, activities are assigned to a single, primary goal for organizational simplicity.

Goal 1 - Understand the impacts of climate change trends on local water resources and infrastructure
Climate change will impact natural resources, infrastructure, and communities in CRWD; however, the extent and magnitude of these changes is not known. More information about BMP performance, ecosystem response, and other data is needed for CRWD to make informed decisions and take appropriate climate resilience actions.
Goal 2 - Mitigate watershed flood risk and infrastructure damage resulting from climate change
Increased flood risk due to greater precipitation amounts and intensities is one of the most significant climate impacts facing CRWD and the most directly relevant to CRWD's statutory purposes and 2020 WMP goals. The highly urbanized nature of the watershed results in a high percentage of precipitation becoming stormwater runoff. As such, changes in climate may result in significant environmental, economic, and public health impacts due to increased flooding. The activities associated with Goal 2 are directly tied to CRWD's Flood Risk Reduction Guidance (Appendix A).
Goal 3 - Increase the use of climate resilient strategies in CRWD programs
CRWD staff, Managers, and partners identified numerous and varied climate resilient strategies that can be integrated into CRWD projects and programs to mitigate climate impacts. Some of these strategies are currently being used, and increasing these efforts across all CRWD programs will help mitigate current and future impacts. CRWD recognizes that climate change impacts residents differently across our District. Some individuals, organizations, and communities bear disproportionate impacts of climate change and may also have fewer resources to recover from and adapt to these impacts. CRWD's climate-resilient strategies will consider ways to support communities with fewer resources.
Goal 4 - Increase community understanding of, and connection to, climate change & CRWD's climate resilience work
CRWD's work is more effective when it is informed by, shared with, and supported by residents, communities, and partners. Climate change is an evolving and far-reaching issue. Awareness and understanding of climate impacts and CRWD's role in addressing them are important to the success of CRWD's resiliency actions and empower communities to take action.
Goal 5 - Work with partners to efficiently address challenges of climate change
Partnerships can promote efficiency through an increased knowledge base, reduced redundancy, and increased funding. Through the initial development of goals and actions, CRWD staff identified several ways CRWD can leverage partners to address climate impacts. Individual strategies were grouped to support a single goal focused on collaboration.

4.3 Implementation Table

Table 4-1 presents the goals and activities included in this Framework. CRWD established five goals supported by a total of 24 specific activities. Activities are listed under a primary goal, although some activities may promote achievement of multiple Framework goals (as well as goals of the CRWD Watershed Management Plan (WMP)).

Table 4-1 presents each numbered and named activity, and includes:

- Lead CRWD division
- Activity description (provides more context to the activity)
- Framework Theme (see Section 4.1)
- Action vs. strategy classification
- Priority (critical, important, or beneficial similar to the WMP)
- CRWD role as lead vs. support
- Timing
- Level of Effort (Planning Level Estimated Cost over 5 years)

4.3.1 Lead CRWD Division

CRWD performs water and natural resource management roles as described in the CRWD WMP and consistent with the statutory responsibilities and authorities granted to watershed districts. All of the activities performed by CRWD fall into the following divisions:

- Administration
- Monitoring, assessment, and research
- Regulation
- Facility Management
- Planning, Projects, and Grants
- Communications and Engagement

This Framework leverages the existing organizational structure (i.e., divisions) and broad roles of CRWD to implement the actions recommended in Table 4-1. Implementation through existing divisional roles, to the extent possible, will help focus on the climate resiliency issues of greatest relevance to CRWD.

However, relying on this structure will require periodic review to ensure actions are not lost in gaps between divisions.

4.3.2 Action versus Strategy Classification

This Framework differentiates "goals" from "activities" based on level of detail and further classifies activities as "actions" or "strategies."

Goal

Future outcome or a course of action presented without detailing how it will be achieved

Activity

An **Action** or **Strategy** implemented to make progress towards a goal

- **Action** - a specific task that will be started and completed, typically only once
- **Strategy** - a policy or approach integrated into future actions or a task that will be regularly performed

4.3.3 Priority

CRWD assigned each activity a relative priority level of "critical," "important," or "beneficial" similar to the priority levels described in the WMP.

- Critical: activities necessary to perform the core functions and statutory duties of the District, as required by law, rule, or statute.
- Important: activities led by the District in support of its goals and objectives but not required by law, rule, or statute and do not ride to the level of 'critical'.
- Beneficial: activities aligned with District goals and objectives but likely to be deferred to a future date, performed only if an opportunity arises, or o be led by District partners, with the District supporting the activity through limited funding, technical assistance, and/or other cooperative efforts.

4.3.4 CRWD Lead or Support Roles

As the owner of this Framework, CRWD will lead the implementation of most activities included in Table 4-1. CRWD will initiate these activities and engage appropriate partners depending on the action's alignment with other plans (see Section 4.3.7). Some activities, however, may be more effectively led by other entities with CRWD serving in support roles that may include, but are not limited to data sharing, technical assistance and project review, funding or cost-share, engagement or planning support, operations and maintenance, and others.

4.3.5 Timing

Sequencing and timing of CRWD actions is important to implementing climate actions in a meaningful way. Table 4-1 presents proposed activity timing in a relative manner:

1 = can start within the next six months, or already occurring
2 = a few years into implementation
3 = longer term (5+ years)

4.3.6 Estimated Level of Effort (Planning Level Estimated Cost)

CRWD recognizes that building climate resiliency into its operations, projects, and programs will require significant resources including staff time and dollars. A few of the actions and strategies included in Table 4-1 may be integrated into existing CRWD processes without significant additional resources. However, many represent new studies or projects with additional internal and external (e.g., consultant fees) costs.

The amounts presented in Table 4-1 represent planning-level estimates of potential cost over a five-year implementation period. Estimated costs for all activities must be refined as part of future scoping/work planning.

4.3.7 Alignment (with Other Climate Plans)

CRWD is one of many local, regional, and state entities planning for resilience in the face of climate change. The issue of climate change and resilience is too large for any one entity to effectively make progress toward by itself. As emphasized in Goal 5 of this Framework, partnerships will help increase efficiency and effectiveness through an increased knowledge base, reduced redundancy, and increased funding.

In developing this Framework, CRWD reviewed several existing climate planning documents (see Section 3.1). Nearly all of the actions included in this Framework (see Table 4-1) are aligned with strategies or actions identified in one or more of the reviewed climate plans.

The "Alignment" column in Table 4-1 denotes partner climate plans with direct alignment to the particular CRWD activity. When work planning for specific actions, CRWD will review the alignment of that action with other plans and identify potential coordination efforts, if appropriate. Plans included in the "Alignment" column of Table 4-1 are limited to those with direct jurisdictional overlap with CRWD and include:

- Saint Paul Climate Action and Resilience Plan (2019)
- Falcon Heights Climate Action Plan (2025)
- Maplewood Climate Action/Adaptation Plan (2021)
- Roseville Population Vulnerability Assessment and Climate Adaptation Framework (2018)
- Ramsey County Climate Action Equity Plan (2024)
- State of Minnesota Climate Action Framework (2022)

Some of the climate plans reviewed in developing this Framework (see Section 3.1) specifically call out involvement or partnership from CRWD and/or other watershed districts. The tabular summary of other climate plans referenced in Appendix B identifies these instances.

The City of Roseville is developing a Climate Equity Action Plan as a follow up to their 2018 Population Vulnerability Assessment and Climate Adaptation Framework. The City of St. Paul is updating their 2019 Climate Action and Resilience Plan. Both cities are critical partners, and CRWD will review and incorporate these documents into its climate planning work as they are completed.

Rain gardens at Harambee Elementary in Maplewood school capture and clean parking lot water.

Table 4-1 Climate Resiliency Framework Goals and Activities

ID	Activity	Activity Description	Lead CRWD Division(s)	Primary Framework Theme(s)	Action/ Strategy	Priority	CRWD Role	Timing	Estimated Level of Effort	Alignment with Other Plans
Goal 1 - Understand the impacts of climate change trends on local water resources and infrastructure										
1.01	Assess existing water resource and natural resource monitoring data for trends relevant to climate change impacts. Periodically evaluate accumulated monitoring data over extended time intervals to assess response of resources and BMPs to changing climate conditions.	The District implements a monitoring program that collects hydrologic water quality, and other data for lakes, wetlands, and stormwater infrastructure. District staff will organize and evaluate collected data for trends and/or correlations relevant to climate change. Staff will periodically evaluate accumulated data relative to longer time intervals (e.g., climate normal periods) to assess the response of resources and infrastructure to changing climate conditions.	Monitoring and Research	Increase our under-standing	Strategy	Important	Lead	1	$10,000	• Maplewood Climate Action Adaptation Plan
1.02	Ensure monitoring programs include opportunities to capture information relevant to climate change impacts and implement changes if needed.	The District implements a monitoring program that collects hydrologic, water quality, and other data for lakes, wetlands, and stormwater infrastructure. District staff will review its monitoring program relative to known and anticipated climate trends, identify data gaps, and recommend additional monitoring, if needed.	Monitoring and Research	Increase our under-standing	Strategy	Important	Lead	1	$25,000	• Ramsey County Climate Action Equity Plan • Maplewood Climate Action Adaptation Plan
1.03	Lead or support development and updates of hydrologic and hydraulic and water quality models of the CRWD watershed; focusing on CRWD-defined subwatersheds, regional/ intercommunity drainage areas, or drainage areas that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.	The District recognizes its role as a regional modeling resource for its partners. The District will (over time) update its hydrologic, hydraulic, and water quality models to reflect estimated future climate conditions. This analysis will prioritize CRWD-defined priority subwatersheds, areas of regional and intercommunity drainage, and areas that directly impact Trout Brook Interceptor and CRWD-owned infrastructure. Modeling results will support completion of other activities included in this implementation program.	Planning, Projects, & Grants	Increase our under-standing Address today's impacts	Strategy	Critical	Lead and/or Support	2	$250,000	• Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
1.04	Assess climate change impacts on CRWD and partner-owned BMP performance and longevity, including Trout Brook Interceptor, from effects of increased flow, freeze-thaw cycles, and other climate change impacts.	The District will identify a list of priority infrastructure to be evaluated with this action. The District will use a combination of modeling, monitoring, and inspection data to identify and document the ways BMP performance may be impacted by climate change. This will include hydrologic and hydraulic modeling of infrastructure and systems with precipitation data representative of future climate change to evaluate increased flood risk, erosion potential, and other negative impacts. The District will identify conditions to be evaluated as part of routine inspections (and/or post-event inspections) and monitor and document these conditions with consideration for recent climatic conditions.	Monitoring and Research Planning, Projects, & Grants Facility Management	Increase our under-standing Address today's impacts	Action	Critical	Lead	1	$100,000	• Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
Goal 2 - Mitigate watershed flood risk and infrastructure damage resulting from climate change										
2.01	Lead or support identification of flood areas and classifying those flood risk areas as high, medium, or low priority with consideration toward impacts to infrastructure, community, and the environment.	The District will use modeling and monitoring data to identify areas of flood risk under current and future climate conditions. The District will classify areas by relative priority with consideration for the degree and type of impacts to environmental resources, infrastructure, and communities. The District will work with partners to identify and rank prioritization factors, Recognizing that partners may have unique concerns leading to partner-specific priorities that differ from CRWD-defined priority areas.	Planning, Projects, & Grants Regulatory	Address today's impacts Design for the future	Action	Critical	Lead and/or Support	1	$150,000	• Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Ramsey County Climate Action Equity Plan

Table 4-1 Climate Resiliency Framework Goals and Activities

ID	Activity	Activity Description	Lead CRWD Division(s)	Primary Framework Theme(s)	Action/ Strategy	Priority	CRWD Role	Timing	Estimated Level of Effort	Alignment with Other Plans
2.02	Lead or partner on flood risk mitigation feasibility studies, focusing efforts on high-priority flood areas, which may include areas identified in completed studies, regional/ intercommunity flood areas, or flood areas that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.	The District will develop flood risk mitigation feasibility studies for areas identified as high-priority in past studies, regional and intercommunity drainage areas, or draining to CRWD-owned infrastructure. The District's role as a leading or supporting entity may be determined based on the characteristics of the study area. The District may consider technical assistance and/or funding support to partners for flood risk reduction evaluations that align with other CRWD goals.	Planning, Projects, & Grants	Address today's impacts Design for the future	Action	Important	Lead and/or Support	2	$300,000	• Falcon Heights Climate Action Plan • Ramsey County Climate Action Equity Plan
2.03	Share stormwater models, associated reports, and feasibility studies with partners and permit applicants and provide technical assistance as requested.	The District will make stormwater modeling results, studies, and associated documentation available to partners and permit applicants. The District will share stormwater models with partners.	Planning, Projects, & Grants	Design for the future	Strategy	Critical	Support	2	Included in other costs	• Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
2.04	Lead or partner in the design, construction, and/or funding of high-priority flood risk reduction projects, which may include those that have been identified in completed studies, address regional/intercommunity flooding, or directly impact CRWD-owned infrastructure (e.g., Trout Brook Interceptor)	Following completion of a feasibility study, the District may pursue projects to reduce flood risk in high-priority flood areas, areas of regional or intercommunity flooding, or flood areas impacting CRWD-owned infrastructure. The role of the District as a lead or support entity will be determined for each project based on project characteristics, involved partners, funding sources, etc.	Planning, Projects, & Grants	Address today's impacts Design for the future	Action	Important	Lead and/or Support	2	$1,000,000	• Ramsey County Climate Action Equity Plan • Minnesota Climate Action Framework • St. Paul Climate Action and Resilience Plan
2.05	Consider technical assistance and/or funding support to partners for flood risk reduction projects that include other benefits that align with CRWD goals	The District may provide technical and/or financial assistance to support partner-led flood risk reduction projects. District participation will consider the project's alignment to goals and actions included in the 2020 Watershed Management Plan and this climate resiliency framework, flood risk area priority, funding availability, and/or other factors impacting feasibility.	Planning, Projects, & Grants	Design for the future	Strategy	Important	Support	3	$50,000	• Ramsey County Climate Action Equity Plan • Minnesota Climate Action Framework
Goal 3 - Increase the use of climate resilient strategies in CRWD programs										
3.01	Evaluate and implement changes to existing CRWD infrastructure that provide opportunities for adaptive management, upscaling, retrofits, and use of innovative technology to improve performance under a changing climate.	The Districts will evaluate risks and impacts to stormwater infrastructure performance and benefits and identify strategies to mitigate negative impacts to infrastructure performance (or promote improved performance) under future climate conditions. Strategies may include structural improvements (e.g., retrofits) and non-structural improvements (e.g., operational changes) and will leverage innovative technology when practical (e.g., predictive flood control). An evaluation of infrastructure maintenance frequency and approach will also be conducted. The District will prioritize implementation strategies with consideration for cost, benefit, and opportunity and implement projects as resources allow.	Facility Mgmt.	Design for the future	Action	Important	Lead	3	$250,000	• Maplewood Climate Action Adaptation Plan • Roseville Population Vulnerability Assessment and Climate Adaptation Framework
3.02	Evaluate and implement revisions to future CRWD project designs to prioritize increasing watershed storage, reducing peak flows, improving vegetation health and density, increasing drought and flood protection, and incorporating other resilience-related functions.	When planning and designing all new projects, the District will consider and evaluate opportunities to maximize climate resilience through: - increasing watershed storage - reducing peak flows - expanding and improving vegetation - increasing flood and drought protection The District recognizes that "over-designing" projects relative to current performance requirements or goals may minimize or prevent future issues. The District will develop design targets to evaluate the incremental costs of over-designing projects for future consideration.	Planning, Projects, & Grants	Design for the future	Strategy	Critical	Lead	1	Included in other costs	• Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan • Minnesota Climate Action Framework

Table 4-1 Climate Resiliency Framework Goals and Activities

ID	Activity	Activity Description	Lead CRWD Division(s)	Primary Framework Theme(s)	Action/ Strategy	Priority	CRWD Role	Timing	Estimated Level of Effort	Alignment with Other Plans
3.03	Evaluate and implement revisions to CRWD rules to address climate change impacts.	The District will work with its land-use authority partners (e.g., cities) to evaluate the impact of climate change on the applicability and adequacy of District Rules. The District will consider findings from the evaluation during future rules update processes. The District may elect to update its Rules following the existing process for Rule updates.	Regulatory	Design for the future	Strategy	Important	Lead	2	$20,000	• Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • St. Paul Climate Action and Resilience Plan
3.04	Evaluate and adjust grant programs to promote climate resilience strategies.	District staff will review existing grant program(s) and may revise them to expand eligibility for project elements that promote climate resiliency and equity. Additional consideration will be given to supporting communities in CRWD's Focus Area that may have fewer resources to recover from and adapt to climate impacts. Practices to be considered in possible grant program expansion may include native vegetation, increased storage, water conservation/reuse, flood protection, chloride reduction, or others. District staff will update grant program communications to reflect the goals of this Plan and any expanded grant eligibility for climate resilience actions.	Planning, Projects, & Grants	Design for the future	Action	Important	Lead	2	$20,000	• Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
3.05	Continue to implement climate-resilient strategies in CRWD's office operations and administrative activities.	The District will continue to operate and maintain the low impact design features at its St. Paul office and maintain the building's LEED certification. As part of its annual work planning process, District staff will review administrative operations and identify potential strategies to reduce climate impacts and increase resiliency.	Admin.	Design for the future	Strategy	Important	Lead	1	Included in other costs	• Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • St. Paul Climate Action and Resilience Plan • Ramsey County Climate Action Equity Plan
3.06	Ensure District safety plan addresses staff working in conditions such as extreme heat, poor air quality, and increased precipitation.	District staff will review public health and safety impacts of climate change and update safety protocols and standard operating procedures, if needed, to address these concerns. Known concerns include, but are not limited to: - Extreme heat/drought - Poor air quality - Flash flood and increased precipitation - Ice safety	Admin.	Address today's impacts Design for the future	Action	Critical	Lead	1	$10,000	• Maplewood Climate Action Adaptation Plan • Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Ramsey County Climate Action Equity Plan
3.07	Update Watershed Management Plan, lake and resource management plans, TBI Capital Improvement Plan, and other organization-guiding documents to include content specific to climate change impacts and actions as needed.	When developing or updating watershed and resource management Plans, the District will incorporate material related to climate resiliency and relevant elements of this climate resiliency framework including, but not limited to: risk/impact assessments, goals, and implementation activities.	Admin.	Design for the future	Strategy	Beneficial	Lead	2	Included in other costs	• Falcon Heights Climate Action Plan

Table 4-1 Climate Resiliency Framework Goals and Activities

ID	Activity	Activity Description	Lead CRWD Division(s)	Primary Framework Theme(s)	Action/ Strategy	Priority	CRWD Role	Timing	Estimated Level of Effort	Alignment with Other Plans
Goal 4 - Increase community understanding of, and connection to, climate change & CRWD's climate resilience work										
4.01	Utilize CRWD's communications and engagement efforts to better understand community concerns and perspectives on the local impacts of climate change and community resilience efforts.	The District will periodically engage watershed communities through existing District events, programs, and targeted outreach to collect perspectives on the local impacts of climate change to inform District programs and projects; with recognition that climate change impacts residents differently across our District and some individuals, organizations, and communities bear disproportionate impacts of climate change.	Comm. & Engagement	Address today's impacts	Strategy	Important	Lead	2	Included in other costs	• Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
4.02	Develop climate resilience messaging for CRWD communications.	The District will develop messaging regarding climate impacts and climate resilience to use in all its communications. Communications staff will coordinate with other divisions to identify and leverage existing engagement opportunities to incorporate messaging appropriate to the audience and opportunity.	Comm. & Engagement All Divs.	Design for the future	Strategy	Important	Lead	1	Included in other costs	• Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan • St. Paul Climate Action and Resilience Plan
4.03	Quantify and share the positive impacts of climate-resilient CRWD projects, programs, and District operations.	The District will quantitatively or qualitatively estimate the climate-related benefits of District projects and programs And share those benefits with its audiences.	Comm. & Engagement All Divs.	Address today's impacts	Strategy	Beneficial	Lead	2	Included in other costs	• Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
Goal 5 - Work with partners to efficiently address challenges of climate change										
5.01	Coordinate with land use authorities and other partners to reduce impervious areas and increase native landscapes & green infrastructure.	The District supports increasing implementation of green infrastructure and native landscapes to mitigate and/or replace impervious surface impacts, especially in areas with high urban heat island effect. This may be accomplished through implementation of grant programs and District rules; pursuit of opportunities identified in natural resource inventories; and/or involvement during redevelopment planning. The District may consider support for climate resilience practices above and beyond minimum requirements in these areas, including the planting and/or protection of trees when there is a direct stormwater management or water quality benefit.	Planning, Projects, & Grants Regulatory	Support through collab-oration	Strategy	Important	Support	2	$25,000	• Falcon Heights Climate Action Plan • Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan • Minnesota Climate Action Framework • St. Paul Climate Action and Resilience Plan
5.02	Coordinate with local climate-focused organizations to identify opportunities for collaboration for CRWD.	Following adoption of this Plan, the District will meet with local climate-focused organizations to identify District roles that can support these organizations. The District will coordinate actions described in this framework to support those organizations or add specific support actions to this framework, as needed.	All	Support through collab-oration	Action	Important	Support	1	$10,000	
5.03	Regularly engage with local city engineers, planners, and other District land-use authority staff regarding climate resilience topics.	The District will continue to convene and participate in advisory groups with city, county, and regional agencies and planning staff. The District will promote stormwater and climate resilience topics and share District actions, as appropriate.	Planning, Projects, & Grants Regulatory	Support through collab-oration	Action	Critical	Lead and/or Support	1	Included in other costs	All local partner plans

Table 4-1 Climate Resiliency Framework Goals and Activities

ID	Activity	Activity Description	Lead CRWD Division(s)	Primary Framework Theme(s)	Action/ Strategy	Priority	CRWD Role	Timing	Estimated Level of Effort	Alignment with Other Plans
5.04	Participate in regional climate change working groups (or similar collaborations) to share data and best practices.	The District will continue to publish and share monitoring data, including data and analyses relevant to climate resiliency. District staff will participate in regional and local planning efforts related to climate impacts and climate resiliency, as opportunities arise. The District will share progress and lessons learned regarding its climate resiliency efforts.	All	Support through collab-oration	Action	Important	Support	1	$20,000	• Roseville Population Vulnerability Assessment and Climate Adaptation Framework • Ramsey County Climate Action Equity Plan
5.05	Work with researchers & institutions to pursue pilot, demonstration, or experimental projects to assess performance of innovative and resilient BMP approaches	The District will partner with research organizations (e.g., University of Minnesota) to implement pilot projects utilizing new and developing BMPs or strategies to mitigate climate change impacts and promote resilience. The District will evaluate performance and share results to further climate resilience science	Planning, Projects, & Grants Regulatory Monitoring and Research	Increase our under-standing Support through collab-oration	Strategy	Beneficial	Lead and/or Support	3	$100,000	• Falcon Heights Climate Action Plan • Maplewood Climate Action Adaptation Plan • Ramsey County Climate Action Equity Plan
Total Estimated Planning Level Cost									**$2.34M**	

5 Alignment with Other Plans

CRWD is one of many local, regional, and state entities planning for resilience in the face of climate change. The issue of climate change and resilience is too large for any one entity to effectively make progress toward by itself. As emphasized in Goal 5 of this Framework, partnerships will help increase efficiency and effectiveness through an increased knowledge base, reduced redundancy, and increased funding.

In developing this Framework, CRWD reviewed several existing climate planning documents (see Section 3.1). Nearly all of the actions included in this Framework (see Table 4-1) are similar to strategies or actions identified in one or more of the reviewed climate plans.

Several actions in Table 4-1 are aligned with multiple partner actions, the most common being:

3.02 - Evaluate and implement revisions to future CRWD project designs to prioritize increasing watershed storage, reducing peak flows, improving vegetation health and density, increasing drought and flood protection, and incorporating other resilience-related functions.

- Climate plans by Ramsey County and Maplewood each reference incorporating project strategies to mitigate climate impacts. Strategies include wetland restoration, floodplain preservation, increased vegetation, and elements of low impact design.

3.03 - Evaluate and implement revisions to CRWD rules to address climate change impacts.

- Several climate plans reference adjusting regulations to require or incentivize practices that mitigate climate impacts. Topics identified include impervious areas, tree replacement, water conservation, winter maintenance and deicing, and others.

3.04 - Evaluate and adjust grant programs to promote climate resilience strategies.

- Several climate plans seek to provide financial resources for residents and businesses to implement climate resilient practices, or to connect those residents and businesses with existing programs.

4.02 - Strengthen connections to climate change and climate action in communication and engagement efforts; *and…*

4.04 - Collaborate with partners to promote climate resilience messaging and volunteer efforts.

- All of the existing climate plans reviewed emphasize the importance of communicating climate risks and mitigation actions with their respective communities.
- Multiple plans included activities aimed at education communities about practices they can implement to reduce their contributions to, and impacts resulting from, climate change.
- Several plans identified partnering with ~~o~~other entities in these efforts.

5.01 - Coordinate with land use authorities and other partners to reduce impervious areas and increase native landscapes & green infrastructure.

- Several climate plans identified strategies and actions focusing on increasing vegetative cover and/or reducing impervious areas. Strategies identified in partner plans included regulatory and policy changes, targeted public projects, incentives, and zoning changes.

Table 4-1 identifies the climate plans with actions or strategies most closely aligned with each CRWD action. When work planning for specific actions, CRWD will review the alignment of that action with other plans and identify potential coordination efforts, if appropriate.

6 Implementation and Next Steps

This Framework will guide CRWD's climate resiliency actions for the next five years, until 2030, when the next Watershed Management Plan is developed. The activities listed in Table 4-1 are intended to be consistent with and complementary to the goals and actions included in the CRWD WMP. CRWD will incorporate elements of this Framework, including goals and activities, into the next WMP update, as appropriate. In the meantime, CRWD will consider activities included in Table 4-1 as it does WMP activities during its annual work planning process.

Staff will be able to use the timing and priority labels assigned to each activity to help prioritize the climate resiliency activities assigned to their division. Alignment with CRWD's WMP and partner actions should also be taken into consideration when prioritizing climate actions and strategies. Additionally, planning efforts for activities listed as Critical will generally begin sooner.

These critical activities (repeated from Table 4-1) include:

- 1.02 Ensure monitoring programs include opportunities to capture information relevant to climate change impacts and implement changes if needed.
- 1.03 Lead or support development and updates of hydrologic and hydraulic and water quality models of the CRWD watershed; focusing on CRWD-defined subwatersheds, regional/ intercommunity drainage areas, or drainage areas that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.
- 1.04 Assess climate change impacts on CRWD and partner-owned BMP performance and longevity, including Trout Brook Interceptor, from effects of increased flow, freeze-thaw cycles, and other climate change impacts.
- 2.01 Lead or support identification of flood areas and classifying those flood risk areas as high, medium, or low priority with consideration toward impacts to infrastructure, community, and the environment.
- 3.02 Evaluate and implement revisions to future CRWD project designs to prioritize increasing watershed storage, reducing peak flows, improving vegetation health and density, increasing drought and flood protection, and incorporating other resilience-related functions.
- 4.01 Utilize CRWD's communications and engagement efforts to better understand community concerns and perspectives on the local impacts of climate change and community resilience efforts.
- 4.02 Develop climate resilience messaging for CRWD communications.

6.1 Document Updates and Progress Assessment

This Framework is intended to guide CRWD's climate resiliency actions for the next five years, until 2030, when the next Watershed Management Plan is developed. However, updates to this document may include, but are not limited to:

- Addition/revision of goals
- Addition of new activities that differ substantially from activities already included
- Addition or update of appendices, such as:
  - Education and engagement materials
  - More thorough vulnerability assessment
  - District-specific climate change data

CRWD intends to incorporate this Framework into its next WMP document. Activities identified in this Framework, as revised, will be implemented consistently with WMP implementation.

CRWD will document implementation of activities included in this Framework as part of its existing annual reporting process. Once incorporated into the next WMP, CRWD will evaluate progress towards its climate resiliency goals as part of its biennial progress assessment of the WMP consistent with Minnesota Rules 8410.

6.2 Conclusion

Climate change is an issue that impacts much of CRWD's work; from managing aquatic invasive species to mitigating flooding to maintaining infrastructure. Due to its relatively small geography and limited statutory authority, CRWD is not in a position to tackle the root causes of climate change on its own. However, it does have the ability and responsibility to adapt its work in a way that minimizes the negative impacts of climate change. CRWD is committed to working with our partners to implement the activities outlined in this plan over the next five years and beyond to make meaningful progress toward a climate-resilient future.

Improved water quality is a shared climate goal among many District partners.

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Appendix A

Flood Risk Reduction Policy and Drainage Assistance Guidance

Capitol Region Watershed District
595 Aldine Street
Saint Paul, MN 55104
(651) 644-8888 • capitolregionwd.org

CRWD Flood Risk Reduction and Drainage Assistance Guidance

Last updated August 2025

CRWD Flood Risk Reduction Guidance

This memorandum briefly identifies roles, policies, actions, and related considerations for CRWD's involvement in flooding issues. These flooding issues are typically driven by insufficient public stormwater infrastructure, involve large drainage areas, and impact multiple parcels.

Study and Evaluation

1. CRWD will continue leading or supporting development and maintenance of hydrologic and hydraulic and water quality models of the CRWD watershed. CRWD's involvement will be focused on CRWD-defined subwatersheds identified as high-priority in the 2021-2030 WMP, regional and/or intercommunity* drainage areas, or drainage areas that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.
2. CRWD will consider leading or supporting identification of flood areas and classifying those flood risk areas as high, medium, or low priority with consideration toward impacts to infrastructure, community, and the environment.
3. CRWD will consider leading or partnering on flood risk mitigation feasibility studies, focusing efforts on high-priority flood areas, which may include areas identified as such in completed studies, regional/intercommunity* flood areas, or flood areas that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.
4. Additionally, CRWD will consider technical assistance and/or funding support to partners for flood risk reduction evaluations that align with other CRWD goals.
5. CRWD will share stormwater models, associated reports, and feasibility studies with partners and may provide technical assistance as requested to aid in the development of flood emergency response plans led by others.

*Regional areas typically cover a drainage area over 50 acres and multiple public and/or private parcels. Regional flood mitigation solutions usually extend beyond the direct area in which the flooding is occurring. Intercommunity areas cross jurisdictional boundaries, like cities or counties.

Project Design and Implementation

1. CRWD will consider leading or partnering on the design, construction, and/or funding of high-priority flood risk reduction projects, which may include those that have been identified as such in completed studies, regional/intercommunity* flooding, or that directly impact CRWD-owned infrastructure such as Trout Brook Interceptor.
2. Additionally, CRWD will consider technical assistance and/or funding support to partners for flood risk reduction projects that include other benefits that align with CRWD goals.

Ongoing Project Operation and Maintenance

Approaches for operations and maintenance of flood mitigation best management practices are detailed in CRWD's Comprehensive Facility Management Program Final Report (September 2023).

CRWD Rules

Considerations for development within floodplains are detailed in CRWD's Rules.

CRWD Drainage Assistance Guidance

CRWD recognizes that certain drainage situations may warrant the District's assistance outside of its Clean Water Project grant policies, and that drainage issues may become more common due to the effects of climate change. These drainage issues are caused by natural sources like groundwater seepage, steep slopes, ravines, or other formations that may lead to erosion, excessive uncontrolled runoff, or downstream flooding. These issues typically occur on a scale smaller than a city block, involve multiple properties, and originate on private property.

In most cases, property owner(s) are responsible for planning, implementing, and maintaining drainage improvement projects. However, CRWD may choose to assist property owners if there is the potential for greater public benefit. Guidance on CRWD's involvement in drainage issues with the potential for public benefit, and involvement in issues with limited public benefit, is provided below.

Potential for Public Benefit

If there is significant potential for public benefit (determined by CRWD on a case-by-case basis) such as improved water quality, reduction in flooding, protection of public infrastructure and/or safeguarding of public health, safety and welfare, the following guidance should be considered:

Study and Evaluation

1. The District may provide technical assistance which may include a site visit of the affected properties, identification of potential causes and contributing watershed area, and determination of potential next steps for the property owners impacted by the drainage issue.
    a. The District may lead or partner on a feasibility study if the drainage issue is identified in a previous study, is listed as high-priority in the 2021-2030 WMP, spans a regional/intercommunity drainage area, or has direct impact to CRWD-owned infrastructure.
    b. CRWD will consider technical assistance and/or funding support to property owners with other drainage issues that align with CRWD goals.
2. Involvement in the study and evaluation stage does not commit CRWD to future involvement in project implementation.

Project Design and Implementation

1. CRWD may lead or partner in the design and implementation of drainage improvement projects if the drainage issue is identified in a previous study, is listed as high-priority in the 2021-2030 WMP, spans a regional/intercommunity drainage area, or has direct impact to CRWD-owned infrastructure.
2. CRWD will consider technical assistance and/or funding support for design and implementation to property owners with other drainage issues that align with CRWD goals.
3. CRWD Rules may apply.

Operation & Maintenance

CRWD involvement in operations and maintenance of drainage solution best management practices is outlined in CRWD's Comprehensive Facility Management Program Final Report (September 2023).

Limited Public Benefit

In drainage issue cases where there is limited or no opportunity for improved water quality, reduction in flooding, protection of public infrastructure and/or safeguarding of public health, safety and welfare, the following policies apply:

Study and Evaluation

1. The District may provide technical assistance that includes a site visit of the affected properties, identification of potential causes and contributing watershed area of the drainage issues, and determination of potential next steps for the property owners.
    a. Involvement in the study and evaluation stage does not commit CRWD to future involvement in project implementation.

Project Design, Implementation, Operations, and Maintenance

1. Drainage issue solutions that only provide benefit to private property are not eligible for CRWD grant funding.
2. CRWD will not be involved in planning, design, implementation, or maintenance of solutions for issues that only provide benefit to private property.
3. CRWD Rules may apply.

Appendix B

Review of Climate Action Documents

Memorandum

To: Rachel Funke and Nate Zwonitzer, Capitol Region Watershed District
From: Greg Williams and Erin Anderson Wenz, Barr Engineering Co.
Della Schall Young, Young Environmental Consulting Group, LLC
Subject: Review and Summary of State, Regional, and Local Climate Resilience Documents
Date: September 20, 2024; Revised September 9, 2025
Project: 23621525-100-002

1 Background

Capitol Region Watershed District (CRWD or the District) is in the process of developing a climate resilience framework to identify goals and associated actions the District may take to address the impacts of climate change locally. Many public entities have already developed climate-related actions plans at the State, regional, or local levels. Staff from Barr Engineering Co. and Young Environmental Consulting Group, LLC (Barr/YECG team) reviewed several of these documents to identify goals, strategies, and actions relevant to CRWD roles and potential climate resilience-related activities.

2 Summary of Document Review

The Barr/YECG team reviewed the following documents:

- State of Minnesota Climate Action Framework (2022)
- Ramsey County Climate Action Equity Plan (2024)
- Hennepin County Climate Action Plan (2021)
- Metropolitan Council Priority Climate Action Plan (2022)
- Saint Paul Climate Action and Resiliency Plan (draft 2025)
- Falcon Heights Climate Action Plan (2025)
- St. Paul Climate Action and Resilience Plan (2019)
- Maplewood Climate Action/Adaptation Plan (2021)
- Roseville Population Vulnerability Assessment and Climate Adaptation Framework (2018)
- Minneapolis Climate Equity Plan (2023)
- Minnehaha Creek Watershed District Climate Action Framework (2022)
- South Washington Watershed District Climate Resiliency Plan (2018)
- Great Lakes Indian Fish and Wildlife Commission Tribal Climate Adaptation Menu (2019)

The documents reviewed vary in content based on the responsibilities of the author entity – for example, counties and cities have roles related to transportation, public health, and economics that are less relevant to watershed districts. The documents also vary in level of detail, with some documents presenting higher level strategies while others contain more detailed actions.

The Barr/YECG team's review of existing documents focused on identifying goals and actions. Table 2 presents the summarized results of this review. Plan content generally described as "goals" are presented in Table 2 as the following, according to specificity:

- Guiding principles (most general)
- Goals/strategies (moderately specific)
- Objectives (most specific, often presented as a subset of goals/strategies)

Table 2 also presents actions categorized as:

- Actions led (those actions led by the Plan author entity)
- Actions supported (actions led by other entities and supported by the Plan author entity)

Not all reviewed documents contain actions. Table 2 presents actions in line with associated goals and/or objectives, where appropriate. Note that information in Table 2 is summarized, organized, and paraphrased using professional judgment. The summary in Table 2 is intended to provide a start for brainstorming and a basis of comparison for possible CRWD goals and actions and should not be considered as a comprehensive summary of all planning documents reviewed (i.e., there is a lot of content and we may have missed something).

The Barr/YECG team qualitatively assessed the items listed in Table 2 as having high, medium, or low relevance to CRWD roles and responsibilities. The Barr/YECG team also assigned a "general category" to each row to allow for future sorting according to broad issues (e.g., vegetation, flooding, air quality). Table 1 presents a count of items of high, medium, or low relevance by category.

Table 1 Count of Items of High, Medium, and Low Relevance to CRWD by Category

Category (for sorting)	Relevance to CRWD			Total Count
	High	Medium	Low	
Agriculture	--	32	2	34
Air Quality	--	7	1	8
Economics	--	30	5	35
Education/Outreach	14	7	15	36
Emergency Response	1	7	7	15
Flooding	19	--	4	23
GHG Emissions/Energy	1	59	2	62
Groundwater	1	--	2	3
Infrastructure	10	--	1	11
Invasive Species	10	1	1	12
Low Impact Development (LID)	31	--	11	42
Monitoring	3	--	1	4
Natural Resources (generally)	16	1	6	23
Parks/Green space	3	--	6	9
Public Health	--	8	3	11
Social Vulnerability	1	14	9	24
Transportation	--	34	1	35
Vegetation	16	3	24	43
Waste Reduction	--	27	4	31
Water Conservation	--	--	7	7
Water Quality	7	--	1	8
Total	**133**	**230**	**113**	**476**

3 Next Steps

Barr/YECG and CRWD staff will review the data presented in Table 2 in combination with the results of brainstorming workshops conducted with CRWD staff, community advisory committee (CAC), and Board of Managers. Barr/YECG and CRWD staff will identify potential goals, strategies, objectives, and/or actions to be further considered in developing the CRWD climate resilience framework. As the framework takes shape, Barr/YECG and CRWD staff will revisit Table 2 and consider how CRWD-led climate resilience actions align with the goals of other organizations.

4 Alignment with CRWD Framework (added September 2025)

Following development of the draft Framework document, the Barr/YECG team reviewed Table 2 relative to the activities listed in the CRWD Framework goals and activities table (Table 4-1). The column in Table 2 entitled “Alignment with CRWD CRF Activities” was added and lists the activity identification number(s) from Framework Table 4-1 for CRWD activities that are aligned with that partner action. Many partner actions in Table 2 do not have aligned CRWD actions from Table 4-1 because the partner actions focus on topics outside the scope of CRWD’s primary foci (e.g., air quality). Some partner actions are aligned with multiple CRWD actions listed in Framework Table 4-1.

Table 2. Summary of Review of Climate Resiliency Planning Documents

Row ID	Entity/Document	Publication Date	Engagement Summary	Climate Trends/ Data Cited	Issues/Impacts/ Resources Evaluated	Goals and Drivers			Actions/Activities		Relevance to CRWD (High, Med, Low)	General Category (for sorting)	Aligned with CRWD CRF Activities:
						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
--	Identifies the document owner (entity) and title	Year published	Summaries partner or public engagement performed as part of document development, if applicable	Identifies relevant climate data studies or trends cited/noted in the document	Lists issues or resources on which the document focusses (e.g., does the study focus on human health, energy, groundwater,	Highest level guidance and/or purpose of the document	High level goals or strategies identified in document (may not be labeled as "goals" in the document)	More specific goals or objectives identified in the document (sometimes a subset of the "goals/strategies" column)	Actions intended to be let by the document owner/entity	Actions the document owner intents to support/fund/partner on.	Qualitative rank of how relevant this item is to CRWD's roles	Keyword added for broadly sorting different actions and/or goals	Alignment with CRWD Framework Activities
1	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	14 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W1: Promote a 5% reduction in water use and wastewater generation Citywide by 2035.		W1-1: Collaborate with regional partners, including SPRWS, CRWD, and Met Council, to help Falcon Heights' largest water users reduce consumption through an opt-in program. Offer technical resources or grants for water-efficient equipment to assist large institutions and businesses in conserving water internally.		**MED**	Water conservation	
2	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	15 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W1: Promote a 5% reduction in water use and wastewater generation Citywide by 2035.		W1-2Promote community-wide adoption of WaterSense fixtures by accelerating installation in homes and expanding to commercial properties. Goal: achieve 30 households and 10 businesses upgraded annually.		**MED**	Water conservation	
3	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	16 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W1: Promote a 5% reduction in water use and wastewater generation Citywide by 2035.		W1-3 Evaluate adopting a Lawn and Landscaping watering policy that provides clear irrigation guidelines and promotes water conservation.		**MED**	Water conservation	
4	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	17 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W1: Promote a 5% reduction in water use and wastewater generation Citywide by 2035.		W1-4 Implement a policy establishing rainwater collection systems and WaterSense fixtures and appliances as standard for all City facility projects, including modeling best practices in the anticipated new park building. Encourage projects receiving City financing or public funds to adopt similar practices and offer technical support as needed.		**MED**	Water conservation	
5	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	18 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W1: Promote a 5% reduction in water use and wastewater generation Citywide by 2035.		W1-5 Partner with Ramsey County, SPRWS, and others to establish a reduced-cost or giveaway program for rain barrels.		**MED**	Water conservation	
6	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/plebluedot/falcon-heights-community-survey-report/	19 US EPA, “What Climate Change Means for Minnesota”; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W2: Identify flood-prone areas and develop plans to address future stormwater and climaterelated impacts.		W2-1 Incorporate anticipated increases in precipitation and extreme weather into the City's stormwater management plans, including addressing redevelopment of currently exempt properties. Collaborate with Capitol Region and Rice Creek Watershed Districts.		**HIGH**	Flooding	

Table 2. Summary of Review of Climate Resiliency Planning Documents

Row ID	Entity/Document	Publication Date	Engagement Summary	Climate Trends/ Data Cited	Issues/Impacts/ Resources Evaluated	Goals and Drivers			Actions/Activities		Relevance to CRWD (High, Med, Low)	General Category (for sorting)	Aligned with CRWD CRF Activities:
						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
7	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	20 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W2: Identify flood-prone areas and develop plans to address future stormwater and climaterelated impacts.		W2-2 Conduct a pavement analysis and permeable pavement conversion study, prioritizing flood-vulnerable areas identified in the City's 2024 Ground Cover Study. Develop an implementation master plan and replacement schedule. (Consider integration with the Land Conversion Opportunity Study.)		**HIGH**	LID	
8	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	21 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W2: Identify flood-prone areas and develop plans to address future stormwater and climaterelated impacts.		W2-3 Explore zoning adjustments to reduce impervious surfaces citywide, emphasizing pavement removal, permeable pavement installation, floodplain preservation, and green stormwater infrastructure. Collaborate with Capitol Region and Rice Creek Watershed Districts.		**HIGH**	LID	
9	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	22 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W2: Identify flood-prone areas and develop plans to address future stormwater and climaterelated impacts.		W2-4 Partner with Capitol Region and Rice Creek Watershed Districts to create or expand incentive programs encouraging rain garden installations, prioritizing areas vulnerable to stormwater impacts.		**HIGH**	LID	
10	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	23 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W3: Increase groundwater, stream, river and wetland water quality protection and restoration.		W3-1 Partner with Capitol Region and Rice Creek Watershed Districts to assess the percentage of impervious surface set a 2035 improvement goal.		**HIGH**	LID	
11	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	24 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W3: Increase groundwater, stream, river and wetland water quality protection and restoration.		W3-2 Strengthen ordinances and enforcement to protect riparian areas, streams, and wetlands that store and filter floodwaters.		**HIGH**	Flooding	
12	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	25 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W3: Increase groundwater, stream, river and wetland water quality protection and restoration.		W3-3 Adopt a no-fertilizer, no-pesticide policy for all City-owned or managed properties and encourage reduced fertilizer and pesticide use by residents and businesses.		**HIGH**	Water Quality	

Table 2. Summary of Review of Climate Resiliency Planning Documents

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						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
13	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	26 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		W3: Increase groundwater, stream, river and wetland water quality protection and restoration.		W3-4 Collaborate with partners to educate residents on environmentally safer alternatives to road and sidewalk salt for ice control.		**HIGH**	Water Quality	
14	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	27 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-1 Increase tree cover, particularly in the priority neighborhoods, from 22.5% to 25% by 2035.		GE1-1 Adopt a No Net Loss policy that ensures every removed public street or space tree is replaced with a seedling or sapling. If replanting on-site isn't feasible, a tree should be planted in a nearby space or within a tree bank established by or designated by the City.		**MED**	Vegetation	
15	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	28 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-1 Increase tree cover, particularly in the priority neighborhoods, from 22.5% to 25% by 2035.		GE1-2 Partner to create or expand an annual tree giveaway or discount program for residents. Example: grow and distribute 400 seedlings or saplings each year.		**MED**	Vegetation	
16	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	29 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-1 Increase tree cover, particularly in the priority neighborhoods, from 22.5% to 25% by 2035.		GE1-3 Update the City's Landscape Ordinance to establish minimum tree and native/pollinator planting coverage standards based on lawn or impervious surface area. Ensure planting islands are included in parking lots for new or expanded developments. Promote diversity in native trees, shrubs, and pollinator-friendly groundcovers.		**MED**	Vegetation	
17	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	30 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-1 Increase tree cover, particularly in the priority neighborhoods, from 22.5% to 25% by 2035.		GE1-4 Collaborate with partners to share educational resources on climate-adaptive trees, promotion of tree and plant diversity, carbon gardening, tree care, and other sustainable greenspace practices such as reducing fertilizer use, biochar amendments, and polyculture lawns. Post resources on the City website.		**MED**	Vegetation	
18	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	31 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-2 Enhance pollinator habitats and replace 15% of turf with native grasses and wildflowers citywide by 2035.		GE2-1 Complete a Land Conversion Opportunity Study to identify turf and impervious areas suitable for conversion to native grasslands, wetlands, shrubs, or forests. Develop an implementation plan by census tract, explore incentives, and launch outreach to promote turf conversion.		**HIGH**	LID	

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19	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	32 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-2 Enhance pollinator habitats and replace 15% of turf with native grasses and wildflowers citywide by 2035.		GE2-2 Establish a policy for City properties to reduce impervious surfaces and enhance natural diversity by incorporating pavement reduction, permeable pavement, green roofs, and replacing turf with native wildflowers and prairie grasses to support pollinators.		**HIGH**	LID	
20	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	33 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-2 Enhance pollinator habitats and replace 15% of turf with native grasses and wildflowers citywide by 2035.		GE2-3 Collaborate with partners like the University of Minnesota Bee Lab, Capitol Region and Rice Creek Watershed Districts to develop and share resources on selecting appropriate native and pollinator-friendly plants.		**MED**	Vegetation	
21	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	34 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-2 Enhance pollinator habitats and replace 15% of turf with native grasses and wildflowers citywide by 2035.		GE2-4 Partner with the University of Minnesota Master Gardeners to create a greenspace ambassador and education program.		**MED**	Vegetation	
22	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	35 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-3 Reduce heat island effect by decreasing dark impervious surfaces 10% citywide by 2035, prioritizing high-impact neighborhoods.		GE3-1 Collaborate with partners to create an incentive program supporting the conversion of underutilized paved and turf areas into sustainable green spaces, following the City's Land Conversion Opportunity Study.		**HIGH**	LID	
23	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	36 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-3 Reduce heat island effect by decreasing dark impervious surfaces 10% citywide by 2035, prioritizing high-impact neighborhoods.		GE3-2 Encourage or require commercial developments receiving City funding, PUD approval, or Conditional Use Permits to implement heat island reduction strategies, including cool surfaces, solar-friendly shading, impervious surface reduction, and breeze capture.		**LOW**	LID	
24	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/palebluedot/falcon-heights-community-survey-report/	37 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-3 Reduce heat island effect by decreasing dark impervious surfaces 10% citywide by 2035, prioritizing high-impact neighborhoods.		GE3-3 Collaborate with partners to develop and promote best practices for reducing heat island effects on commercial properties.		**LOW**	LID	

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25	Falcon Heights Climate Action Plan	2025	Community-wide surveys and input meetings and events. Goals and actions were shaped by community feedback: https://view.publitas.com/publebluedot/falcon-heights-community-survey-report/	38 US EPA, "What Climate Change Means for Minnesota"; https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf	Extreme heat and weather; Flooding; Air Quality; Food Insecurity; Infrastructure/power failure		GE-3 Reduce heat island effect by decreasing dark impervious surfaces 10% citywide by 2035, prioritizing high-impact neighborhoods.		GE3-4 Collaborate with partners to create a cool roofs and pavements incentive program and develop a Falcon Heights demonstration project featuring a cool roof, green roof, green/live wall, or vertical garden.		**MED**	LID	
26	Hennepin County Climate Action Plan	2021	staff engaged Hennepin County's cities, watershed organizations, park districts, and other regional and state units of government to learn about their priorities for climate work and opportunities for collaboration. Staff also reached out to partner community groups that are working on climate change to gather feedback on the community engagement approach.	Minnesota Department of Natural Resources Climatology Office. Minnesota Department of Natural Resources, 2019.	People: health, behavior, and disparity reduction; Transportation and infrastructure; Buildings and energy; Waste and materials; Water, natural resources, and land use.	Prioritize disparity reduction; Cut greenhouse gas emissions; Adapt to climate hazards; Results in a more equitable and resilient Hennepin County.	Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Collect, monitor, and communicate climate risks to public health, society, and the economy.		HIGH	Monitoring	1.01 1.02 4.02
27	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Foster relationships with communities to engage, listen, and respond with people-centered solutions.		MED	Education/Outreach	4.01 4.02
28	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Improve education and communication to promote awareness, personal action, and best practices		MED	Education/Outreach	
29	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Plan for population growth due to people relocating from areas facing more severe climate impacts and explore lessons learned from previous climate shocks to prepare for climate refugees.		LOW	Social Vulnerability	
30	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Increase coordination with Minnesota Department of Health through their Climate and Health Program efforts.		LOW	Education/Outreach	
31	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	Hennepin County becomes a more resilient community that can withstand and adapt to abrupt and sometimes unforeseen weather, social, and economic changes	Collect data from recreational beach water to monitor disease rates and respond to outbreaks.		MED	Public Health	
32	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Improve collection of data and monitor the health impacts of climate change, including increased respiratory and cardiovascular disease burdens and particularly the impact on racial disparities.		LOW	Public Health	
33	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Strengthen sustainable access to affordable housing, healthcare, food, and transportation and other social determinates of health for residents.		LOW	Social Vulnerability	

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34	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Create relationships with the communities in ways that strengthen engagement and build trust.		MED	Education/Outreach	4.01 4.02 5.03
35	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Develop and include a climate analysis framework with a health and racial equity lens in budgets and planning work.		MED	Social Vulnerability	4.01
36	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Conduct outreach to vulnerable communities using customized and culturally appropriate approaches to meet diverse communities' needs.		MED	Education/Outreach	4.02
37	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Mitigate the heat island effect, especially in areas with people most vulnerable to extreme heat, by supporting increased access to air conditioning, increasing the tree canopy, and converting hardscape where possible to green infrastructure.		HIGH	LID	3.02 3.03 5.01
38	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Address flooding in housing, especially where people most vulnerable to flooding impacts live, by promoting and providing financial support for preventative measures such as sump-pumps and landscaping to redirect water away from structures.		HIGH	Flooding	3.04
39	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Build awareness of expanding flood zones among at-risk residents and businesses and the potential availability of optional flood insurance. Explore options for possible subsidized flood insurance based on financial need.		HIGH	Flooding	2.01 2.03
40	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Reduce air pollution associated with transportation, especially in areas with vulnerable populations.		LOW	GHG emission/energy efficiency	
41	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	The county's response to climate change prioritizes the protection of the most vulnerable residents and advances equitable health outcomes	Reduce the health impacts associated with pollution from the production, packaging, use, and disposal of materials by supporting waste prevention, reuse, recycling, toxicity reduction, and proper management of hazardous waste.		LOW	Waste reduction	
42	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	County climate investments support broader county goals to reduce disparities in employment and grow the economy	Explore a green jobs/pathways program concept for installation, establishment, and maintenance of green infrastructure.		MED	Economics	
43	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	County climate investments support broader county goals to reduce disparities in employment and grow the economy	Engage with youth, especially in areas of greatest vulnerability, to increase awareness of climate change and mitigation strategies, highlight careers in the environmental field, and create a community-based network of environmental stewards.		MED	Education/Outreach	
44	Hennepin County Climate Action Plan	2021					Protect and engage people, especially vulnerable communities	County climate investments support broader county goals to reduce disparities in employment and grow the economy	Support new job opportunities in energy efficiency, renewable energy, and green infrastructure.		MED	Economics	

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45	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Increase the density of the county's network of automated weather and environmental monitoring stations (also known as the Hennepin West Mesonet) for improved warning and response decisions and increased ability to precisely target weather-related notifications.		MED	Flooding	1.02
46	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Identify areas at risk for all types of flooding, including flowing surface water (fluvial), standing surface water (pluvial) and subsurface water (groundwater) and coordinate with public entity partners to create strategies for reducing risk, especially for vulnerable populations.		HIGH	Flooding	2.01
47	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Inform development by increasing risk awareness of areas of surface and groundwater flooding, landslides, and sinkholes. Work with cities to include these risks as part of their review of new development proposals.		HIGH	Flooding	3.03 5.03
48	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Work with residents and businesses to build awareness of flood risks outside of FEMA-designated flood zones.		HIGH	Flooding	2.01 4.02
49	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Review emergency management preparedness plans to identify and address significant vulnerabilities in ensuring access to food, drinking water, energy supply and other living essentials during emergencies, particularly those anticipated to be exacerbated by climate change.		MED	Emergency Response	3.06
50	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Help create an more resilient energy infrastructure by establishing a mix of renewable energy and energy storage that together can withstand significant environment extremes to reduce the potential for blackouts, power outages, price spikes and public health risks.		LOW	Emergency Response	
51	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Regularly review continuity of operations plans to ensure delivery of core services and recovery after a disaster.		LOW	Emergency Response	
52	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Increase and maintain the supplies and equipment in the Hennepin Disaster Cache and elsewhere for emergency response to flooding and other increasing climate-related disasters.		LOW	Emergency Response	
53	Hennepin County Climate Action Plan	2021					Enhance public safety	Hennepin County assesses, prepares for, and mitigates risks from hazard events	Improve natural disaster plans to include sustainable waste management practices to deal with the debris resulting from climate disasters.		LOW	Waste reduction	
54	Hennepin County Climate Action Plan	2021					Enhance public safety	Residents, businesses, and organizations understand and are prepared to respond to the impacts of climate change	Clearly communicate climate risks and vulnerabilities and raise awareness about programs and services available to decrease risks and address vulnerabilities.		MED	Education/Outreach	4.02

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55	Hennepin County Climate Action Plan	2021					Enhance public safety	Residents, businesses, and organizations understand and are prepared to respond to the impacts of climate change	Coordinate operations of readily accessible and culturally appropriate cooling and heating options and communicate the availability of these centers to vulnerable people.		LOW	Social Vulnerability	
56	Hennepin County Climate Action Plan	2021					Enhance public safety	Residents, businesses, and organizations understand and are prepared to respond to the impacts of climate change	Advocate for expanding utility disconnect protections to include air conditioning and modifying building codes to require efficient air conditioning.		LOW	GHG emission/energy efficiency	
57	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Update stormwater design standards that will serve as a standard across Hennepin County lines of business to account for increased rainfall intensities.		HIGH	LID	1.04 3.01 3.02 3.03
58	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Modify pavement and sidewalk design standards to accommodate projected changes to freeze/thaw cycles.		HIGH	LID	3.03
59	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Change snow and ice removal practices to account for increased precipitation intensity and increased icing due to increased freeze/thaw cycles, reduce total salt use on county property, and accommodate more multi-modal transportation options on county roads.		MED	LID	3.03
60	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Alter site development performance standards and design guidelines for rights-of-way and other county properties to reduce impervious surfaces and prioritize green infrastructure, such as trees, boulevard landscaping, tree trenches, and detention tactics. Adjust county policy to address long-term maintenance needs of green infrastructure assets.		HIGH	LID	3.03 5.01
61	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Design capital projects to projected mid-century rain events and incorporate landslide hazard reduction approaches, where applicable.		HIGH	Flooding	3.01 3.02
62	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Climate risks and impacts to county buildings and infrastructure are assessed and mitigated	Incentivize projects that are designed to control projected mid-century rainfall events in the cost participation policy for contribution to regional flood reduction projects.		HIGH	Flooding	3.03 3.04
63	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Design capital projects to manage flows from mid-century forecasted rainfalls.		HIGH	Flooding	3.01 3.02
64	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Incorporate Green Streets stormwater management strategies into the county's Complete Streets policy.		HIGH	LID	5.01 5.03
65	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Protect and restore streams, wetlands, floodplains, and uplands.		HIGH	Natural Resources	3.03
66	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Reduce impervious surfaces, use green infrastructure, reuse stormwater for irrigation, and design landscapes that don't require irrigation.		HIGH	LID	3.03 5.01
67	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Reduce barriers to regional stormwater management by investing in partnerships, empowering staff to work beyond property line boundaries, and creating a policy for financial contributions to such projects.		HIGH	Infrastructure	3.03 5.01 5.03

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68	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Preserve open space and agricultural lands and promote stormwater best management practices to landowners.		HIGH	LID	
69	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Conduct further analysis to determine areas of risk, rank them in terms of severity, and develop solutions.		HIGH	Flooding	1.04 2.02
70	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Align land use, zoning, ordinances, and permitting activities with the realities of climate vulnerabilities and risks.		HIGH	LID	3.03 5.01
71	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Dedicate land at time of plat for climate change mitigation and stormwater facilities.		HIGH	Infrastructure	3.03
72	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Consider managed retreat in areas most vulnerable to flash flooding, such as finding opportunities with Hennepin County's tax-forfeited land portfolio, city economic development authorities, and local watersheds.		MED	Flooding	
73	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Build stormwater facilities within county rights-of-way as part of capital improvement projects in opportunistic ways that share costs while achieving county, city, and watershed management goals.		HIGH	Infrastructure	3.02
74	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Protect drinking water by assessing vulnerability of wellhead protection areas and private wells to increased precipitation and flooding.		MED	Groundwater	
75	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Risks and impacts from increased precipitation, flooding, and landslides are reduced	Develop a groundwater plan that considers the impacts of climate change, including extreme weather events and wet/dry cycles, on groundwater resources, surface-level groundwater hazards, and drinking water availability.		MED	Groundwater	
76	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Expand the use of sustainable landscapes to increase the resilience of county properties by managing stormwater onsite, reducing the impact of the urban heat island, and sequestering carbon by incorporating Minnesota's sustainable building guidelines (B3) site and water guidelines for building projects.		MED	LID	3.02 5.01
77	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Minimize hardscape in project designs and convert existing hardscape, where practical, into pervious pavement or green infrastructure.		MED	LID	3.02 3.03 5.01
78	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Assure long-term financial support to maintain green infrastructure and create green jobs.		MED	LID	

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						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
79	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Include green infrastructure in site development performance standards for county projects.		HIGH	LID	3.02 3.03
80	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Reduce the volume of and pollutant load in stormwater runoff through increased implementation of stormwater best management practices on current county building sites and rights-of-way.		HIGH	LID	3.02 3.03
81	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Advocate for and incentivize the incorporation of green infrastructure into building renovation and site development plans on private property through transit-oriented development, Environmental Response Fund, Natural Resources Grants, and other incentive programs.		HIGH	LID	3.03 3.04
82	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Assess all excess and tax-forfeited property for higher public uses, such as water infiltration basins or tree plantings, before considering for sale.		MED	LID	
83	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Achieve a goal of no net loss of trees on Hennepin County property by planting more trees, replacing trees, addressing barriers associated with maintenance, and protecting mature trees.		HIGH	LID	5.01
84	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Create and implement tree planting plans to expand the urban forest canopy using the tree planting prioritization map to determine greatest needs and focus on increasing tree species diversity to include bird-friendly native species as well as species that are now hardy in Hennepin County.		HIGH	Vegetation	5.01
85	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Partner with cities and other organizations on tree plantings and provide grants to cities and organizations for tree inventories, tree plantings and maintenance, and forestry education		HIGH	Vegetation	5.01
86	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	The county employs green and natural infrastructure, including trees, plants, and soil, to increase resiliency of the built environment, especially in areas at higher risks for localized flooding and extreme heat.	Educate the public about tree benefits and threats, engage volunteers and youth through tree plantings and tree care education, and support the planting of trees on private property.		HIGH	Vegetation	3.04 4.02
87	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Monitor for both aquatic and terrestrial invasive species by using early detection methods, such as community scientists, and implementing invasive species control programs that include rapid response protocols and employ integrated pest management on public and private property.		HIGH	Invasive Species	1.01 1.02

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88	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Protect, restore, and connect natural areas, including streams, wetlands, floodplains, prairies, savannas, and forests, with a focus on supporting biodiversity and providing habitat for species that alter their range in response to climate change.		HIGH	Natural Resources	3.02
89	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Continue efforts to preserve natural areas through conservation easements.		HIGH	Natural Resources	3.03 5.03
90	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Create pathways for residents and partners to preserve natural areas and other open spaces and adjust land management practices to provide ecosystem services crucial to climate adaptation.		HIGH	Parks/Green Space	5.01
91	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Develop an Integrated Water Management Plan that considers findings from the groundwater plan, including vulnerabilities and/or areas of concern, with already established surface watershed management plans and land use management practices to develop a framework that protects vital aquatic ecosystems and source waters.		HIGH	Natural Resources	
92	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Create and preserve affordable agricultural space for every scale of local food production – from conventional commodity agriculture to urban farming – and work with partners to encourage the development of farm-totable efforts, focusing especially on increasing access to these programs in low-income communities.		LOW	Agriculture	
93	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Promote best management practices on agricultural land with a focus on practices that create healthier soils with increased carbon storage and water holding capacity of soils while maintaining or improving long-term crop yields.		LOW	Agriculture	
94	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Conduct education and outreach that helps current and future agricultural producers and their partners understand both the need for and financial benefit of building climate change resiliency into their farming operations and the agricultural economy.		LOW	Agriculture	
95	Hennepin County Climate Action Plan	2021					Increase the resilience of the built environment and protect natural resources	Natural areas and open spaces are functional and diverse	Work with other public agencies to address threats from climate change impacts to water quality more broadly to clearly understand the risks related to increased precipitation and changing surface-level groundwater flows and ensure that responses in one location do not exacerbate water quality degradation downstream.		HIGH	Water quality	5.02 5.03 5.04
96	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Establish green building guidelines for county and regional adoption		LOW	GHG emission/energy efficiency	3.05

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97	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Reassess current development grants and explore new financial incentives to increase market transformation of climate-friendly buildings and renewable energy.		LOW	GHG emission/energy efficiency	
98	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Prioritize conservation, efficiency, and renewable energy in policies and programs.		LOW	GHG emission/energy efficiency	
99	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Invest in renewable energy through utility sources, community solar gardens, and on-site solar.		LOW	GHG emission/energy efficiency	
100	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Develop strategies to convert Hennepin County buildings from natural gas to electric fuel sources.		LOW	GHG emission/energy efficiency	3.05
101	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Maximize centralized energy sources that incorporate renewable technologies.		LOW	GHG emission/energy efficiency	
102	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Determine the approach and level to which the county encourages residential and commercial energy efficiency and renewable energy		LOW	GHG emission/energy efficiency	
103	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Encourage energy benchmarking of buildings and expand the Hennepin County Efficient Buildings Collaborative.		LOW	GHG emission/energy efficiency	3.05
104	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Explore a uniform, county-level green building policy that cities could adopt, or advocate for B3/LEED standards and protocols above and beyond when state funding comes in for facilities and infrastructure.		LOW	GHG emission/energy efficiency	
105	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with buildings and energy use are reduced to meet the county's emission goals	Engage with municipalities to develop strategies that encourage switching to a less carbon-intense fuel source for commercial and residential buildings, such as electrification.		LOW	GHG emission/energy efficiency	
106	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Advance the Minnesota Department of Transportation's (MnDOT) goal of 20% reduction in VMT by 2050 by developing a more ambitious goal for Hennepin County that reflects our role in the state as a more densely populated county, and also reflects rural, suburban, and urban contexts within Hennepin County.		LOW	GHG emission/energy efficiency	
107	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Engage with MnDOT and other transportation partners as the MnDOT develops the Statewide Multimodal Transportation Plan in 2021 to align greenhouse gas emission reduction strategies		LOW	GHG emission/energy efficiency	
108	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Advocate for the buildout of planned transit routes and the development of new routes.		LOW	Transportation	

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109	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Expand transit-oriented development and bicycle and pedestrian facilities.		LOW	Transportation	
110	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Explore strategies to reduce employee vehicle use for county business purposes		LOW	Transportation	
111	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Advocate for strategies to reduce travel demand, such employer support for employee transit expenses and promoting flexible work schedules.		LOW	Transportation	
112	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Prioritize roadway preservation and modernization, Including expanded safety and multi-modal upgrades, to minimize system expansion.		LOW	Transportation	
113	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Manage the road system to minimize pollution by leveraging additional technologies.		LOW	Transportation	
114	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Support increased and more efficient transit on county roadways in coordination with transportation partners.		LOW	Transportation	
115	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with transportation are reduced to meet the county emission goals	Update the county's Complete Streets policy to develop a modal hierarchy framework that prioritizes transit, pedestrians, and bicyclists in urban and suburban contexts.		LOW	Transportation	
116	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Support food rescue efforts to divert more food to people in need.		LOW	Agriculture	
117	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Help businesses and organizations that produce a lot of food waste implement best practices for preventing food waste.		LOW	Waste reduction	
118	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Use research gathered by surveying residents and conducting focus groups into the barriers and benefits to reducing wasted food at home to develop a consumer campaign on food waste prevention.		LOW	Waste reduction	
119	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Continue to support and fund residential and commercial organics recycling programs and implement business food waste recycling requirements and city residential organics recycling requirements.		LOW	Waste reduction	
120	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Develop organics recycling infrastructure by advancing anaerobic digestion and making improvements to the Brooklyn Park Transfer Station.		LOW	Waste reduction	
121	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Close the loop by increasing the use of compost in county projects and encouraging public and private partners to do the same.		LOW	Waste reduction	

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122	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Expand organics collection and improve recycling at county facilities.		LOW	Waste reduction	
123	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Require the salvage and recycling of construction and demolition waste at all county-funded building projects.		LOW	Waste reduction	
124	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Educate county contractors on building material reuse and recycling.		LOW	Waste reduction	
125	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Increase implementation of in-place pavement rehabilitation in road projects.		MED	Waste reduction	
126	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Sustainably manage waste after disasters.		LOW	Waste reduction	
127	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Conduct a consumption-based emissions inventory and use the results to create a more comprehensive approach to climate change mitigation.		MED	GHG emission/energy efficiency	
128	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Educate residents on the climate impacts of consumer choices and expand efforts that educate residents and businesses on the importance of practicing more thoughtful consumption by preventing waste, recycling more, participating in organics recycling or backyard composting and reducing meat consumption.		LOW	Waste reduction	
129	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Develop and implement a county sustainable purchasing policy on par with other leading public entities and provide sustainable purchasing best practices.		LOW	Waste reduction	
130	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Encourage purchases that prioritize reuse, durable goods, and avoiding disposables.		LOW	Waste reduction	
131	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Support product stewardship and extended producer responsibility (EPR), especially for plastic packaging and single-use plastics.		LOW	Waste reduction	
132	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Support standards for product design that minimize environmental impacts, improve product durability and longevity, ensure the right to repair, and establish producer responsibility for end-of-life management of goods they produce.		LOW	Waste reduction	

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133	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Advocate for state funding and market development initiatives that align with climate and zero-waste goals.		LOW	Waste reduction	
134	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Advocate for additional authority and tools that would allow local government to implement climate action and zero-waste strategies.		LOW	Waste reduction	
135	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	Greenhouse gas emissions associated with waste and material use are reduced to meet county goals	Join the U.S. Plastics Pact, which brings together plastic packaging producers, brands, retailers, recyclers, and waste management companies to take coordinated action to tackle plastic waste and pollution.		LOW	Waste reduction	
136	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	The county sequesters carbon on county-owned property, including along county road rights-of-way and tax-forfeit properties.	Develop goals, accounting strategies, and guidelines to help staff advance carbon sequestration on county projects.		LOW	GHG emission/energy efficiency	
137	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	The county sequesters carbon on county-owned property, including along county road rights-of-way and tax-forfeit properties.	Prioritize trees and native plants over turfgrass in landscape designs on new projects.		HIGH	Vegetation	3.02 5.01
138	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	The county sequesters carbon on county-owned property, including along county road rights-of-way and tax-forfeit properties.	Convert from turfgrass to other landscape types where appropriate to improve carbon sequestration.		MED	Vegetation	
139	Hennepin County Climate Action Plan	2021					Reduce emissions in ways that align with core county functions and priorities	The county sequesters carbon on county-owned property, including along county road rights-of-way and tax-forfeit properties.	Use compost and biochar as a soil amendment on county projects.		MED	LID	
140	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Landowners sequester carbon by protecting and restoring habitat, building soil health, and preserving and planting trees.	Develop goals, prioritization frameworks, and outreach and marketing strategies to promote carbon sequestration projects in the most impactful places around the county.		LOW	GHG emission/energy efficiency	
141	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Landowners sequester carbon by protecting and restoring habitat, building soil health, and preserving and planting trees.	Provide assistance to landowners wishing to adjust land management practices to increase the carbon storage of soils and sequester carbon in trees and plants. [Five examples provided on page 61]		MED	Vegetation	3.04
142	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Landowners sequester carbon by protecting and restoring habitat, building soil health, and preserving and planting trees.	Incorporate carbon sequestration potential into evaluation and planning of other natural resource and water resource projects and partnerships.		HIGH	GHG emission/energy efficiency	3.02
143	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Landowners sequester carbon by protecting and restoring habitat, building soil health, and preserving and planting trees.	Track carbon sequestration and other benefits accrued from soil health efforts, land management improvements, habitat restoration and protection projects, and other related work on private lands.		MED	Monitoring	
144	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Partnership models driven by mutual climate goals are explored and pursued	Foster long-term, integrated planning that includes jointly collecting and analyzing data and modeling with a lens on health and racial equity.		HIGH	Natural Resources	3.07
145	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Partnership models driven by mutual climate goals are explored and pursued	Reduce localized flooding and coordinate regional stormwater resiliency efforts.		HIGH	Flooding	2.02 2.03 2.04 2.05
146	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Partnership models driven by mutual climate goals are explored and pursued	Decarbonize transportation and buildings.		LOW	GHG emission/energy efficiency	

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147	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Partnership models driven by mutual climate goals are explored and pursued	Educate and engage the public in taking collective action.		MED	Education/Outreach	4.02
148	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Partnership models driven by mutual climate goals are explored and pursued	Raise a collective voice for climate policy at the local and state level.		HIGH	Natural Resources	5.04
149	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Foster long-term community engagement that takes a social and environmental justice lens and gives community partners and youth a voice in plan development and implementation.		HIGH	Education/Outreach	4.01 4.02
150	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Support community initiatives and empower local leadership to ensure solutions are relevant and effective.		MED	Education/Outreach	
151	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Improve climate education throughout the county by partnering with community groups and schools to ensure messages and messengers are relevant.		HIGH	Education/Outreach	4.01 4.02
152	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Take a strong leadership position and collaborate broadly with diverse partners to encourage bold climate action at the local and state level.		HIGH	Natural Resources	5.02 5.04 5.05
153	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Implement solutions and support community-driven initiatives that provide financing options, offer job training and workforce development, and increase investment in vulnerable communities.		MED	Economics	
154	Hennepin County Climate Action Plan	2021					Partner in ways that can be most impactful	Communities are engaged and empowered through partnership and shared leadership	Increase transparency and facilitate community involvement in measuring progress toward meeting the established goals and ensure accountability.		HIGH	Education/Outreach	4.03
155	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)	the City of Maplewood issued this community survey to collect input from a broad range of community members. The intent of the survey was to help the city identify sustainability and climate adaptation needs, opportunities, priorities, and issues for the City of Maplewood. This survey was designed by paleBLUEdot and reviewed for edit by City of Maplewood planning staff. The survey was made available on-line on a dedicated webpage (https://palebluedot.llc/Maplewood-climate-adaptation-survey).	2020 Maplewood Climate Vulnerability Assessment		Health and Safety	Prepare the community for anticipated climate change impacts.		HS-1- 1 Partner with outside agencies on emergency response plans and explore opportunities to design and offer community resilience model training 1		**MED**	Emergency Response	3.06
156	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Prepare the community for anticipated climate change impacts.		HS-1- 2 Review and effectively communicate emergency and evacuation plans on a regular basis to update for climate change forecasted data, paying particular attention to flooding, extended heat waves and tornadoes 2		**LOW**	Emergency Response	

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157	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Prepare the community for anticipated climate change impacts.		HS-1- 3 Conduct a health impact assessment for areas that may have unsafe levels of air pollution from vehicle traffic, and use data to modify zoning (see if any MPCA data indicates hot spots, related to at risk populations/ asthma) mobile source and point source manufacturing 2		**LOW**	Public Health	
158	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Prepare the community for anticipated climate change impacts.		HS-1- 4 Explore partnerships to create programs to support families who cannot afford to purchase supplies for household emergency preparedness kits to adequately prepare their homes (e.g. solicit emergency supply donations). Identify possible strategies for the structure of the program through a review of donation programs in other communities and engagement with community partners and businesses 2		**Low**	Social Vulnerability	
159	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Prepare the community for anticipated climate change impacts.		HS-1- 5 Identify a sustainable funding source for increased utility assistance for low income residents, including support for energy efficiency projects, such as weatherization 2		**LOW**	Social Vulnerability	
160	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Improve community health and well-being.		HS-2- 1 Ensure the community has robust resources to address increases in violence and crime, particularly domestic violence, during periods of stress including emergencies and heat waves (work with existing Police Department efforts related to mental health response and domestic abuse response and partnerships with agencies, look to examples from other metro cities 1		**LOW**	Public Health	
161	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Improve community health and well-being.		HS-2- 2 Execute an assessment on completeness of sidewalks connecting all streets and prioritized implementation plan coordinated with County. 1		**LOW**	Transportation	
162	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Improve community health and well-being.		HS-2- 3 Increase community participation in health and wellness, exercise and nutrition programs tie into Ramsey County MNSHIP initiatives 2		**LOW**	Public Health	
163	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 1 Increase outreach to diverse populations about climate change and health, natural hazards, and emergency preparedness via broadcast, print, bus ads, social media, and other forms of communication in multiple languages and accessible to individuals with disabilities to ensure that emergency preparedness planning reaches all City residents 1		**MED**	Social Vulnerability	4.01 4.02
164	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 2 Increase household education about water quality and food storage risks resulting from power outages associated with increased extreme weather events 2		**LOW**	Emergency Response	

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165	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 3 Expand resident awareness and use of MPCA and MDH alert texts and emails of the City Air Quality Index including particulate matter and pollen counts so that the public is aware of bad air quality days. Include strategies for coping with poor air quality days 2		**MED**	Air Quality	
166	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 4 Conduct education and outreach on the effects of nutrient loads and contaminants in stormwater on local water quality (Partner with RWMWD) 2		**HIGH**	Education/Outreach	
167	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 5 Provide information on what residents can do to reduce their carbon footprint and how their households can be more resilient. 2		**MED**	Education/Outreach	
168	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Educate, engage, and empower the public on health and safety risks of climate change impacts.		HS-3- 6 Partner with County Health Department to Identify list of resources for dealing with health impacts and to work with vulnerable populations to share information about climate risks to health and create specific adaptation strategies 2		**MED**	Public Health	
169	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 1 Increase the number of City employees that participate in employee health and wellness, exercise, and nutrition programs 1.b		**LOW**	Public Health	
170	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 2 Develop city-wide ordinances or policies to encourage, incentivize, or require the reduced use of water-related illness agents such as phosphorus and synthetic nitrogen fertilizers, herbicides and pesticides, that have potentially negative impacts on natural resources and human health 1		**HIGH**	Water Quality	3.03
171	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 3 Adopt/enforce codes/ordinances requiring window screens, especially for rental housing facilities. 2		**LOW**	Social Vulnerability	
172	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 4 Encourage the preservation or establishment of native and natural vegetation near shorelands to protect wetlands, lakes, and rivers to reduce damage to water quality from severe storms and heavy rain events. 2		**HIGH**	Vegetation	3.03
173	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 5 Incentivize increased greenspace, pervious ground cover, and pervious pavement at existing and new developments to increase water infiltration, slow water table depletion, and reduce the impact of heavy rain events.2		**HIGH**	LID	3.02 5.01

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174	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 6 Develop and identify/collect educational content and resources to provide to owners, developers, contractors, and designers of development, redevelopment projects, and commercial/multi-family properties to inform on strategies to reduce the urban heat island, improve landscape plans, increase effective tree cover, improve pavement reduction and parking requirement reduction, and solutions which may offer multiple benefits for property owners and users to share with residents and businesses. Targeted toward redevelopment and properties that have a lot of pavement. 2		**HIGH**	LID	
175	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Health and Safety	Implement City policies to address health and safety considerations of climate change.		HS-4- 7 Review/create anti-idling policies and enforcement plans for city vehicles (especially on bad air days) coordinate with school district. Establish City wide anti - idling ordinance addressing all gasoline and diesel powered motors. 2		**LOW**	GHG emission/energy efficiency	
176	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 1 Identify and promote existing heat-warning systems for employees and the public 1		**MED**	Emergency Response	3.06
177	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 2 Plant shade trees to limit the need for indoor cooling and reduce temperatures at parks, playgrounds, and other outdoor spaces. Prioritize plantings based on city's Tree Canopy survey, identifying neighborhoods with higher heat island impacts, lower existing tree equity, and higher vulnerable population shares. 1		**MED**	Vegetation	3.02 5.01
178	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 3 Strengthen emergency management capacity to prepare for and respond to the impacts of climate change. The City should prioritize capacity improvements such as training and equipment to address risks exacerbated by climate change. Emergency management should be equipped to address the possibility of multiple emergencies at the same time, such as the combination of wildfire smoke coupled with extreme heat and local brush fires 2		**MED**	Emergency Response	3.06
179	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 4 Identify and minimize potential urban heat impacts 2		**MED**	LID	
180	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 5 Educate public and public health professionals about health risks posed by climate change, including potential changes in air quality and impacts on mental health. Explore partnerships for curricula and educational materials and joint communications efforts. 2		**LOW**	Education/Outreach	

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181	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Address health impacts of extreme heat.		EHW-1- 6 Explore modification of multi-family building licensure to include participation in the Xcel Energy and CenterPoint Energy Multi-Family building energy efficiency program as a requirement for re-licensure. https://www.centerpointenergy.com/en-us/SaveEnergyandMoney/Pages/Multi-Family-Building-Efficiency.aspx?sa=MN&au=bus 2		**MED**	LID	
182	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Educate, engage, and empower the public on Extreme. Heat and Weather and linkage with health.		EHW-2- 1 Identify, review for appropriateness, and promote existing resource materials to emphasize steps individuals can take to improve emergency preparedness. Increase awareness of City and other alert systems. Resource: All hazard mitigation plan https://www.ramseycounty.us/your-government/departments/safety-andjustice/emergency-management-homeland-security 1		**LOW**	Education/Outreach	
183	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Educate, engage, and empower the public on Extreme. Heat and Weather and linkage with health.		EHW-2- 2 Continue to provide education around vegetation management of trees and how proper management can reduce storm-related power outages. Explore translating materials to support equity in communications.1		**MED**	Vegetation	5.01
184	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Educate, engage, and empower the public on Extreme. Heat and Weather and linkage with health.		EHW-2- 3 Enhance community networks and connections for those who require special attention, such as the elderly, homebound, disabled, isolated, or those likely to be in need of financial assistance during or after extreme weather events (heat, cold and heavy precipitation) 2		**LOW**	Social Vulnerability	
185	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Educate, engage, and empower the public on Extreme. Heat and Weather and linkage with health.		EHW-2- 4 Identify funding sources to facilitate a financial aid arrangement to assist property owners in conducting preventive vegetation management and assist with costs related to post-storm, tree clean-up 2		**MED**	Vegetation	3.04
186	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Educate, engage, and empower the public on Extreme. Heat and Weather and linkage with health.		EHW-2- 5 Coordinate with the County on county-wide actions related to improved incentivization and financing mechanisms for multi-family energy efficiency and promote their use to multi-family building owners. 2		**LOW**	GHG emission/energy efficiency	
187	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Implement effective systems and processes to manage and respond to extreme weather events		EHW-3- 1 Continue to involve key community partners, such as hospitals, in emergency preparedness and management. Include the impacts of climate change as emerging threats in future response planning. 1		**LOW**	Emergency Response	
188	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Implement effective systems and processes to manage and respond to extreme weather events		EHW-3- 2 Review debris management plans to support response to severe storm events and flooding 1		**MED**	Flooding	

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189	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Implement effective systems and processes to manage and respond to extreme weather events		EHW-3- 3 Ensure that facilities that serve vulnerable populations are resilient to climate hazards. Identify, promote, and share model procedures for ensuring both City and non-City facilities employ best practices in the event of an emergency such as flooding, power outages, extreme heat, etc. 2		**LOW**	Social Vulnerability	
190	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Implement effective systems and processes to manage and respond to extreme weather events		EHW-3- 4 Review and update the Emergency Management Plan in relation to projected climate change impacts to the community. 2		**MED**	Emergency Response	
191	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Improve the capacity of the City and community to provide support during extreme weather events.		EHW-4- 1 Identify existing resources on climate change, extreme heat and weather and use resources to train staff and inform the public. 1		**LOW**	Education/Outreach	
192	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Improve the capacity of the City and community to provide support during extreme weather events.		EHW-4- 2 Link low-income populations, communities of color, older adults and people with disabilities to services that help reduce safety, health and financial risks associated with climate change impacts. 2		**LOW**	Social Vulnerability	
193	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Improve the capacity of the City and community to provide support during extreme weather events.		EHW-4- 3 Make emergency communications available in multiple languages and platforms. The City's top non-English languages should be addressed in the multiple-language communication plan. Platforms used should focus specifically on reaching the City's top vulnerable populations identified in this report 2		**MED**	Education/Outreach	4.02
194	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Improve the capacity of the City and community to provide support during extreme weather events.		EHW-4- 4 Improve the safety and walkability of neighborhood sidewalks to increase foot traffic and opportunities for community interaction and easy access to neighborhood businesses and resources. 2		**LOW**	Transportation	
195	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 1 Develop a policy that requires all housing development projects receiving City funding, PUD approval, and/or Conditional Use Permitting to implement residential scale heat island mitigation strategies which may include cool surfaces, solar friendly landscape shading strategies, impervious surface reduction, and breeze capture. 1		**HIGH**	LID	3.03

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196	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 2 Review existing development ordinances/ standards to look for opportunities to incentives or require tree planting within parking lots. Ordinance should establish a specific goal of percentage of pavement to be shaded by trees. Working with developers during variances and planned unit developments. Build upon the North End study and areas of heat islands. (Proactively work with developers to review their site plans and parking needs to reduce pavement and increase trees. Get RWMWD to invest in stormwater with new developments, use the examples from the Maplewood Mall and best practices for tree health. Solar shade canopy on parking lots. 2		**HIGH**	Vegetation	3.03
197	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		2EHW-5- 3 Promote policies and programs which decrease impervious surfaces, especially in neighborhoods of increased vulnerable populations. Look at reflectivity/ cool pavement. Look at the pricing of the stormwater utility fee and credits for reduction of pavement, etc. 2		**HIGH**	LID	3.02 5.01
198	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 4 Review current building and development standards/policies/ordinances (applicable to public buildings, to PUDs, and to private-sector buildings which receive public funding/ resources) to increase vegetative cover and increase the solar reflective quality of surfaces (mid-cost) 2		**HIGH**	Vegetation	3.03
199	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 5 Review voluntary sustainable building guidelines to reduce generation of waste heat from buildings by promoting and incentivizing building energy efficiency measures (low-cost) Increase energy audits, using Energy Smart/Waste Wise outreach staff funded by the county. Encourage building control methods to prevent taking in too much air on hot or cold days i.e. 75F building control tools. 2		**LOW**	GHG emission/energy efficiency	
200	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 6 Explore reduction of parking requirement ratios in zoning ordinances and encourage use of “proof of parking” strategies to minimize initial parking construction. Proactively work with developers to review their site plans and parking needs to reduce pavement, run off and urban heat island. Encouraging integration of trees. Tie into overall multi modal transportation planning and telecommuting. Trees, lighting and EV Charging spots, 2		**MED**	LID	5.01

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201	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Extreme Heat and Weather	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		EHW-5- 7 Explore the development of a "Cool Roof", "Cool Building" and "Cool Pavement" pilot project to test and exhibit heat island mitigation strategies. North end large commercial properties, incentivize installation of reflective roofing materials, with federal tax incentives and St. Paul Port Authority and PACE loans. Black roofs are good to melt winter snow. Tie into U of MN experts and pilot projects https://twin-cities.umn.edu/new-urban-heat-island-study-shows-surprising-variation-air-temperatures-across-twin-cities 2		**MED**	LID	5.01 5.05
202	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Increase and maintain air quality for residents and businesses.		AQ-1- 1 Work with the Air Quality Management District, MPCA Air Quality Alerts, and County Public Health Department to establish a process (and expand the number of platforms e.g., social media) to notify schools, community organizations, residents, and businesses 1		**LOW**	Air Quality	
203	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Increase and maintain air quality for residents and businesses.		AQ-1- 2 Inventory, identify, and maintain adequate community-safe spaces for poor air quality. Popular community gathering spaces must be made safe during air quality emergencies (smog or wildfire smoke). Options for improving safety include retrofits, upgrades, or other measures to ensure that these spaces are accessible and adequate for sensitive populations 2		**LOW**	Air Quality	
204	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Increase and maintain air quality for residents and businesses.		AQ-1- 3 Conduct education and outreach on the health impacts of air pollution, longer allergy seasons, and extreme heat events 2		**LOW**	Air Quality	
205	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Increase and maintain air quality for residents and businesses.		AQ-1- 4 Enhance street scape plantings and tree canopies, especially in areas of high traffic volumes 2		**HIGH**	Vegetation	5.01
206	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Reduce auto-generated particulate matter, tailpipe pollutants, waste heat, and ozone formation.		AQ-2- 1 Reduce generation of waste heat from mobile sources by promoting and incentivizing public transit, biking and walking. 1		**LOW**	Transportation	
207	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Reduce auto-generated particulate matter, tailpipe pollutants, waste heat, and ozone formation.		AQ-2- 2 Install roadside vegetation that creates effective barriers to prevent drifting of air pollutants to adjacent schools and residences. Coordinate with upcoming planned MNDOT and County upgrade projects. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6060415/ 2		**MED**	Vegetation	
208	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Reduce auto-generated particulate matter, tailpipe pollutants, waste heat, and ozone formation.		AQ-2- 3 Measure and maintain review for progress City transportation connectivity using Center for Neighborhood Technology's All Transit index. Other indices also exist for walkable neighborhoods, commuting by bicycle, and commuting by walking. 2		**LOW**	Air Quality	

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209	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Educate, engage, and empower the public on Air Quality and linkage with health.		AQ-3- 1 Educate public and public health professionals about health risks posed by climate change, including potential changes in air quality and impacts on mental health. 1		**LOW**	Air Quality	
210	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Air Quality	Educate, engage, and empower the public on Air Quality and linkage with health.		AQ-3- 2 Develop and distribute educational content (brochures, k-12 curricula content, infographics, media announcements, etc.) which outline and actively promotes the clean air and health benefits of strategies included in this CAP plan such as: use of renewable energy, conservation of energy, use of electric vehicles, public transit, ride share, and walking and biking for transportation. 2		**LOW**	Air Quality	
211	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 1 Continue to update stormwater management plans to include best available data on projected rainfall and climate change impacts to reduce flooding and promote better water quality. 1		**MED**	Flooding	1.03 2.03
212	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 2 Provide education to residents on what actions they can take to reduce their risk to extreme precipitation events and flash flooding. Develop an information HUB with tools and resources (e.g. https://www.cnt.org/tools/my-rainready-homeassessment-tool)1		**HIGH**	Flooding	4.02
213	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 3 Continue consistent implementation of the City's Living Streets policy to address priority areas of localized flooding and to expand green infrastructure and decentralized stormwater infiltration capacity. 1		**HIGH**	LID	3.02
214	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 4 Develop and implement water conservation education and outreach programs in residential and commercial sectors. Coordinate with potential partners like Ramsey County and watershed districts. 2		**MED**	Water conservation	4.02 5.03
215	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 5 Coordinate and leverage city stormwater management infrastructure investments for streets, parks, and open space with watershed districts and county infrastructure investments. 2		**HIGH**	Infrastructure	3.01 3.02 5.03
216	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 6 Expand public education about the value of watersheds, rain gardens, and low impact development to address stormwater run-off. Implementation should focus on increasing equity in the community. 2		**HIGH**	LID	4.01 4.02 4.03

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217	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Improve community stormwater preparedness and water conservation.		FW-1- 7 Support the watershed district in helping to communicate and prepare owners of properties vulnerable to flooding. 3		**HIGH**	Flooding	2.01 4.02
218	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Promote and expand green infra-structure.		FW-2- 1 Promote the development of rain gardens and bioswales among residents and businesses and continue to partner with the Watershed District for grants and program support. Prioritization should be given to locations with greatest impact potential: neighborhoods with high heat island coefficient, high impervious surface shares, and high vulnerable populations. 1		**HIGH**	LID	3.04
219	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Promote and expand green infra-structure.		FW-2- 2 Establish a policy to prioritize open space preservation as an important strategy for stormwater infiltration, heat island mitigation, and species diversity protection. Actively seek partnerships and opportunities to increase preservation of green space, including review of Maplewood development and redevelopment projects against their negative impacts or positive contributions towards increasing green space preservation. 1		**MED**	Parks/Green Space	3.03 5.01
220	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Promote and expand green infra-structure.		FW-2- 3 Create a pre-development and/or permit checklist or pre-meeting requirement to ensure developers meet all of the City and watershed districts' on-site stormwater capture and infiltration requirements. The checklist or pre-meeting should include education or review of stormwater best practices for site design and engineering. 1		**HIGH**	LID	3.03 5.03
221	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Promote and expand green infra-structure.		FW-2- 4 Promote native landscaping, "landscaping for absorption" , restore and conserve habitat; encourage rain gardens on private property, avoid turf grass, and convert City-owned space to include stormwater absorption features. Tree selection should consider those on the "Adaptive Planting List" which will thrive in our future local climate (refer to Maplewood Citywide Tree Survey and Carbon Sequestration Study). Prioritization should be given to locations with greatest impact potential: neighborhoods with high heat island coefficient, high impervious surface shares, and high vulnerable populations. 2		**HIGH**	Vegetation	5.01 5.03

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222	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Strengthen emergency management capacity to respond to flood-related emergencies.		FW-3- 1 Update, test, and train emergency response plans to address hazards likely to become more frequent or intense as the climate changes, including flash flooding and unseasonal riverine flooding 1		**HIGH**	Flooding	3.06
223	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Strengthen emergency management capacity to respond to flood-related emergencies.		FW-3- 2 Prepare a Blue Spot flash flood risk map to identify areas within city that are particularly vulnerable to flash flood impacts. Create an implement a mitigation and response plan. Share and promote the information developed by the flash flood risk map, particularly among vulnerable populations and neighborhoods. (https://climateadapt.eea.europa.eu/metadata/tools/the-blue-spot-model-a-key-tool-in-assessing flood-risks-for-the-climate-adaptation-of-national-roads-and-highway-systems) 1		**HIGH**	Flooding	2.01 4.02
224	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Increase the resilience of the natural and built environment to impacts of climate change.		FW-4- 1 Identify and address vulnerabilities in local infrastructure as a result of increased frequency and severity of storms and rainfall. Prioritization should be given to locations with greatest impact potential: neighborhoods with high heat island coefficient, high impervious surface shares, and high vulnerable populations. Explore additional funding sources such as grants 1		**HIGH**	Infrastructure	1.04 2.01
225	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Increase the resilience of the natural and built environment to impacts of climate change.		FW-4- 2 Identify, promote, and provide education and resources about climate risks to the public, especially those most vulnerable to potential impacts of flooding 1		**HIGH**	Flooding	4.02
226	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Flooding and Water Quality	Increase the resilience of the natural and built environment to impacts of climate change.		FW-4- 3 Change design and management methods to minimize water use and waste in publicly owned or managed properties while still maintaining thriving vegetation. Replace potable water lawn irrigation systems with grey/recycled water systems at city-owned facilities where practicable. Explore the development of a demonstration project to pilot the technology. Explore partnerships with county, watershed district, and nonprofit entities. 2		**MED**	Water conservation	3.02 3.05
227	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 1 Manage publicly-owned natural areas to enhance and maintain diverse native landscape communities. Implementation should prioritize areas of high impact and vulnerability. 1		**HIGH**	Natural Resources	3.02
228	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 2 Establish and effectively manage native-habitat corridors along trails and utility easement areas to restore and maintain landscape connectivity. Implementation should prioritize areas of high impact and vulnerability. 1		**HIGH**	Natural Resources	3.02

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229	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 3 Create a Urban Forest Master Plan to establish objectives and best management practices for Maplewood's urban forest and to identify appropriate canopy cover and species diversity goals for the City and identify programs and suitable locations to maintain and expand Maplewood's urban tree canopy. Use Maplewood's Tree Canopy Study in forming the masterplan. Master plan should prioritize areas of high impact vulnerability, and equity 1		**MED**	Vegetation	5.01 5.03
230	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 4 Require the use of native plants in landscaping at City-owned properties 1		**HIGH**	Vegetation	3.03
231	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 5 Identify underutilized paved areas and incentivize conversion to sustainable green space. Implementation should prioritize areas of high impact and vulnerability. 1		**MED**	Parks/Green Space	5.01
232	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 6 Update the City's Living Streets policy to include requirements for planting more native, pollinator friendly, and climate change resistant trees and plants. 1		**HIGH**	LID	3.02
233	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Increase the accessibility and quality of habitat for native plants and animals.		G-1- 7 Update the City's landscaping requirements to require native, pollinator friendly, and climate change resistant plants and trees. 1		**HIGH**	Vegetation	3.03
234	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Improve the resilience of the urban forest and watersheds to climate change.		G-2- 1 Preserve existing forested areas through practices that re-purpose already developed areas, such as establishing codes that retain minimum canopy cover on new developments and minimize removal of native soil, ground cover, and shrubs 1		**HIGH**	Vegetation	3.03 5.01
235	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Improve the resilience of the urban forest and watersheds to climate change.		G-2- 2 Promote and expand weed pulls, tree plantings, invasive species identification and management, wildfire mitigation, and other educational activities that promote stewardship among the public, businesses, and homeowners 2		**MED**	Vegetation	3.03
236	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Improve the resilience of the urban forest and watersheds to climate change.		G-2- 3 Develop a watch list of potentially invasive species that could establish residency in the City due to climate change and distinguish this from species that might naturally expand their range. Programs provided by the Maplewood Nature Center support this action 2		**HIGH**	Invasive Species	1.02
237	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Improve the resilience of the urban forest and watersheds to climate change.		G-2- 4 Document and monitor the spread of invasive species. Establish agency management practices that reduce the spread of invasive species 2		**HIGH**	Invasive Species	1.01 1.02

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238	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 1 Adopt a City tree plan based on the Maplewood Citywide Tree Survey and Carbon Sequestration Study. The tree plan to include a list of preferred climate change resistant trees, management and funding strategies for trees in rights-of-way and public spaces.1		**MED**	Vegetation	5.01
239	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 2 Review and revise parking lot shading guidelines and enforcement of increased canopy cover. Policy should be informed by the Tree Master Plan 1		**MED**	Vegetation	3.03 5.01
240	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 3 Review and refine park and natural space plans to minimize damage from the impact of increased use and climate change impacts. Implementation should prioritize areas of high impact and vulnerability. 1		**MED**	Natural Resources	1.04
241	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 4 Develop neighborhood tree goals based on the City's 2017 Tree Survey and Carbon Sequestration Study and increase opportunities for residents to learn about and t ake care of tree. 1		**MED**	Vegetation	
242	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 5 Review and improve strategies for responding to pest and disease invasions 2		**MED**	Vegetation	
243	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Expand and sustain urban tree canopy and forests.		G-3- 6 Update the City's approved street tree guide and landscape design standards for new development for tree species appropriate for a future local climate 2		**MED**	Vegetation	
244	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Manage ecosystems and landscapes to minimize heat island impacts.		G-4- 1 Continue to promote the expansion of tree canopy in urban heat islands or areas that need air conditioning such as schools and apartment buildings (use the Maplewood Citywide Tree Survey and Carbon Sequestration Study as well as the Met Council heat island/tree map to review areas of need) Look for ways to expand the city budget capacity, look to pass state bonding money for trees, coordinate capital investments with county and watershed district. Potential to get lower cost trees (bare root) with gravel bed with Ramsey County 1		**HIGH**	Vegetation	5.01
245	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Greenspace and Ecosystem Health	Manage ecosystems and landscapes to minimize heat island impacts.		G-4- 2 Create an ordinance for new and redeveloped commercial and mutli-family property that preserves a certain percentage of land as green space. 1G-4- 3 Evaluate opportunities to plant additional trees near city facilities and city, county and State road improvement projects to reduce heat island. Coordinate with Solar Goals. Use tree boxes and soil practices to improve tree survivability, tie into the Living Streets policy and tree health strategies. 2		**MED**	Parks/Green Space	3.03 5.01

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246	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Educate, engage, and empower the public on food linkage with climate and health.		F-1- 1 Create collaborative partnerships with community-based organizations and affinity groups, including low-income populations and communities of color, to: a) Promote healthier, low-carbon diets. b) Encourage local food production. c) Support affordability and access to healthier foods through neighborhood food buying clubs and co-ops. d) Reduce food waste. 1		**LOW**	Agriculture	
247	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Educate, engage, and empower the public on food linkage with climate and health.		F-1- 2 Identify funding options and partner organizations to promote public awareness of a climate-friendly diet through public education campaigns 1		**LOW**	Agriculture	
248	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Educate, engage, and empower the public on food linkage with climate and health.		F-1- 3 Encourage and incentivize personal and neighborhood backyard fruit and vegetable gardens - Ramsey County Master Gardeners can give presentations, possibility of helping people build raised bed gardens 2		**LOW**	Agriculture	
249	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Integration of Local Food Considerations in City Plans.		F-2- 1 Develop an emergency food plan that includes a food needs assessment, plan for stockpiling the necessary food supplies, and a distribution and public communication plan that takes into account those most at risk for food insecurity. Work with local retailers, producers, and warehouses to obtain and store the necessary food stocks 2		**LOW**	Agriculture	
250	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Integration of Local Food Considerations in City Plans.		F-2- 2 Develop policy and equitability provide programmatic resources to: a) Increase the production and consumption of home-grown and locally sourced food by supporting farmers markets and community supported agriculture. b) Create policies and practices to encourage the purchase of healthy, low-carbon and minimally processed foods for public meetings, events and facilities. c) Expand opportunities for food production and neighborhood-scale distribution including community gardens, especially for low-income populations and communities of color. d) Increase the use of public and private land and roof-tops for growing food. e) Increase the planting of fruit and nut trees in appropriate locations. f) Leverage the purchasing power of public and private institutions to source low-carbon and local foods including County jails. 2		**LOW**	Agriculture	
251	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Integration of Local Food Considerations in City Plans.		F-2- 3 Integrate sustainable food system issues that affect climate into land use planning processes and, where practical, incorporate quantitative goals and metrics. 2		**LOW**	Agriculture	

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252	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 1 Expand community gardening and urban agriculture opportunities including those at schools, parks, and on rooftops. 1		**LOW**	Agriculture	
253	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 2 Identify and prioritize locations to create community gardens throughout Maplewood 1		**LOW**	Agriculture	
254	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 3 Continue to keep the city's directory of community gardens up to date, including which gardens have openings for new gardeners. Establish a webpage with community garden information, a virtual community garden tour video, and links to garden websites for all community gardens in Maplewood including those operated by non-city entities. 1		**LOW**	Agriculture	
255	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 4 As land where existing community gardens is being re-developed work with the developer to find ways to incorporate community garden space. Connect Community Gardens with resources from the U of MN Horticultural Society 1		**LOW**	Agriculture	
256	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 5 Update code to provide incentives or require developers to preserve topsoil and provide space for backyard or community gardens 2		**MED**	Agriculture	3.03
257	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase production of local food.		F-3- 6 Allow city facilities to be used as Community Supported Agriculture drop off sites 2		**LOW**	Agriculture	
258	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Strengthen demand for local foods.		F-4- 1 Pass city policy to procure locally grown foods for events and other organized food catering at city-managed facilities. Coordinate with School District, County, and local hospitals to establish similar locally sourced foods procurement policies. Explore development of group purchasing and logistics agreements to increase efficiency of local farm-to-agency process. https://goodfoodpurchasing.org/ 1		**LOW**	Agriculture	
259	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Strengthen demand for local foods.		F-4- 2 Promote year-round farmers markets and/or CSA drop off spots - Talk with the St. Paul Farmers Market, Hmong American Farmers Assoc. and the St. Paul Ramsey County Food and Nutrition Council to see if there is a need to add one or more regular or small farmers markets in Maplewood (i.e. Church parking lot, etc.) 2		**LOW**	Agriculture	
260	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Strengthen demand for local foods.		F-4- 3 Encourage CSAs, markets, urban gardens, etc. and provide support incentives for these projects 2		**LOW**	Agriculture	
261	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Strengthen demand for local foods.		F-4- 4 Increase opportunities for local food producers to sell and distribute food locally 2		**LOW**	Agriculture	

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262	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 1 Support existing school and community gardens and provide opportunities to expand community growing spaces with a focus on youth, immigrant, and low-income residents 1		**LOW**	Agriculture	
263	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 2 Develop pollinator friendly policies including promotion of pollinator habitats on public and private land as well as policies which restrict and eliminate neonicotinoid pesticides 2		**MED**	Vegetation	
264	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 3 Develop edible landscaping initiatives to educate residents about these local food resources and to showcase the variety of plants that can grow in the City 2		**LOW**	Agriculture	
265	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 4 Develop policies and ordinances which promote, encourage, or require permaculture landscaping in lieu of “traditional” lawn oriented landscaping. 2		**LOW**	Agriculture	
266	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 5 Explore potential of collaborating with low cost produce providers to establish local food markets serving low income, vulnerable, and food insecure communities while addressing retail and commercial food waste. Potential partner: Daily Table https://dailytable.org/ 2		**LOW**	Agriculture	
267	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Increase food security for residents, especially those most vulnerable to food environment.		F-5- 6 Support the school districts serving Maplewood to shift toward healthier lunches and to use produce from local farmers. (Encourage their nutritionists to contact the St. Paul Schools for info) 2		**LOW**	Agriculture	
268	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Reduce and repurpose food waste and food-related waste.		F-6- 1 Work regionally to support and facilitate food donation programs. Food donation programs reduce the amount of healthy, safe food that goes to waste and redirects it to those in need. 1		**LOW**	Agriculture	
269	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Reduce and repurpose food waste and food-related waste.		F-6- 2 Reduce food waste through partnership with Ramsey County to advance existing Ramsey County initiatives and explore the development of joint initiatives. 1		**LOW**	Agriculture	
270	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Local Food and Agriculture	Reduce and repurpose food waste and food-related waste.		F-6- 3 Conduct an organics waste collection pilot project with a sample of City businesses to test the interest, methodology, and amount of commercial food waste that would need to be accommodated by a commercial organics collection program. Explore possible incentives for food retailers, restaurants, and institutions to participate in food waste reuse and recycling programs 2		**LOW**	Agriculture	

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271	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Leverage the economic development opportunities of the Green Economy.		CE-1- 1 Conduct a Community-Wide Renewable Energy Potentials Study for the City including exploration of district energy systems. Study should identify potential incentives, economic development opportunities as well as economic savings/ impacts of expansion of renewable energy infrastructure within the City. 1		**LOW**	Economics	
272	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Leverage the economic development opportunities of the Green Economy.		CE-1- 2 Explore and prepare for the potential of leveraging Federal COVID relief, infrastructure, and/or climate action funding for use in Maplewood. Create a list of priorities that need funding, explore funding potentials with county, state, and federal sources/grants, etc. 1		**LOW**	Economics	
273	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Leverage the economic development opportunities of the Green Economy.		CE-1- 3 Leverage Community Development Block Grants from the Department of Housing and Urban Development, or HUD, to invest in resilient and equitable communities 2		**LOW**	Economics	
274	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Leverage the economic development opportunities of the Green Economy.		CE-1- 4 Conduct a Climate Economy Economic Development Assessment to identify economic development potential of climate adaptation, climate mitigation, and energy action planning. 2		**MED**	Economics	
275	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Leverage the economic development opportunities of the Green Economy.		CE-1- 5 Develop job training programs focused on building resiliency- solar construction, weatherization, etc. 2		**LOW**	Economics	
276	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Enhance community resilience through economic resilience.		CE-2- 1 Conduct a planning effort focused on identifying economic vulnerabilities and opportunities, especially those affecting the city's vulnerable populations. Identify economic resilience strategies and strengthen public-private economic communications, especially with targeted group businesses (minority-owned, veteran owned, economically disadvantaged, etc.). Possible example process: https://www.eda.gov/ceds/ 1		**LOW**	Economics	
277	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Enhance community resilience through economic resilience.		CE-2- 2 Work with community businesses to explore the creation of an incentivized "buy local" campaign to enhance resilience of small local businesses. 1		**LOW**	Economics	
278	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Enhance community resilience through economic resilience.		CE-2- 3 Explore development of one or more Green Zones, a place-based policy initiative aimed at improving health and supporting economic development using environmentally conscious efforts in communities that face the cumulative effects of environmental pollution, as well as social, political and economic vulnerability. http://www.ci.minneapolis.mn.us/sustainability/policies/green-zones 2		**MED**	Social Vulnerability	

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279	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Enhance community resilience through economic resilience.		CE-2- 4 Establish a policy to prioritize local purchasing where feasible for City Operations and a "Buy Local" campaign to promote local businesses to community members and businesses - particularly those with services supporting climate action such as energy efficiency or renewable energy, or those who exhibit strong sustainability practices. 2		**LOW**	Economics	
280	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Include Economic Resilience in Emergency Response Planning.		CE-3- 1 Make sure key business infrastructure is recognized in the City and County's general hazard mitigation plan and emergency response plan 1		**LOW**	Economics	
281	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Include Economic Resilience in Emergency Response Planning.		CE-3- 2 Analyze how risks and hazards identified in this report and the City / County's emergency response plan may impact the economic community. Conduct outreach to industry groups and public-private partnerships to promote private sector investment addressing them 1		**LOW**	Economics	
282	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Include Economic Resilience in Emergency Response Planning.		CE-3- 3 Ensure redundancy in telecommunications and broadband networks to protect commerce and public safety in the event of natural or manmade disasters 2		**LOW**	Economics	
283	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Include Economic Resilience in Emergency Response Planning.		CE-3- 4 Facilitate in-person discussions with community businesses to build relationships and prepare City's business community for risks and hazards identified in this report and the City / County's emergency response plan, and identify the businesses and infrastructure that are most vulnerable to disaster 2		**LOW**	Economics	
284	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 1 Re-connect with the homes and businesses that received solar feasibility assessment information from the City in 2018/2019. The extension of the ITC is a great opportunity to reach back out to these groups to let them know that the tax incentive and benefit has been extended 2 years - and to let them know about the solar group purchase campaign that Maplewood is participating in this year that could save them money as well. 1		**LOW**	Economics	
285	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 2 Prepare water, road, and other public infrastructure for increased demands from growth and tourism 1		**LOW**	Economics	
286	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 3 Focus the City's business development efforts on businesses that have lower impacts on natural resources, that are non-polluting, offer or support environmentally sustainable goods or services, and/or actively promote telecommuting, alternative work schedules, and alternative transportation modes. 1		**LOW**	Economics	

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287	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 4 Establish a Clean Energy business incubator to support the establishment of innovative energy efficiency and renewable energy business models within the community. Explore incentives which can be coupled with the incubator to bring businesses supporting clean energy into the community. 1		**LOW**	Economics	
288	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 5 With community stakeholders and partners, conduct a study and host a community conversation to identify threats to current industries, opportunities for new businesses and industries, and areas that need support. 2		**LOW**	Economics	
289	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 6 Work with businesses to assess their climate change vulnerability and plan for the future. 2		**LOW**	Economics	
290	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Climate Economy	Accelerate the transformation to a low-carbon economy.		CE-4- 7 Identify and promote locations for green businesses 2		**LOW**	Economics	
291	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Improve City staff capacity and knowledge of their role in meeting climate goals.		AC-1- 1 Conduct annual GHG emissions inventories, including identification of improved processes for quantifying net carbon sequestration and solid waste emissions. Create and distribute an annual municipal adaptation and GHG emissions report to staff to be used in assessment of current and proposed activities. 1		**LOW**	GHG emission/energy efficiency	
292	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Improve City staff capacity and knowledge of their role in meeting climate goals.		AC-1- 2 Create a data management and reporting system for key performance indicators of activities related to CAP goals. Continue to align performance measurements of CAP actions with existing planning metrics. 2		**HIGH**	Natural Resources	1.01 1.02
293	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Improve City staff capacity and knowledge of their role in meeting climate goals.		AC-1- 3 Provide training and other capacity building opportunities to staff to facilitate creative, climate positive innovations in operations, project design and implementation. 2		**HIGH**	Natural Resources	4.03
294	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Improve City staff capacity and knowledge of their role in meeting climate goals.		AC-1- 4 Incorporate climate projections (e.g. precipitation, temperature, flooding) in transportation, hazard mitigation, and development planning 2		**HIGH**	Natural Resources	1.04
295	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 1 Develop and incorporate equity metrics in the evaluation of CAP activities. This evaluation will be used as a criterion for the Environmental and Natural Resources Commission, MORE team, and budget team during review of implementation. 1		**MED**	Social Vulnerability	4.03
296	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 2 Align existing City communication, educational and engagement programs with CAP goals and programs. Provide additional support to education and outreach to under served and vulnerable populations for the CAP and its individual actions. 2		**HIGH**	Education/Outreach	4.02

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297	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 3 Host a community event regularly (every two years or less) to celebrate the annual progress report on the implementation of the CAP 2		LOW	Education/Outreach	
298	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 4 Develop a communication campaign to reach those without access to internet or technology, limited English speakers, and individuals in hard to reach vulnerable populations. Establish a variety of communication avenues such as through art, mail, public forums, digital surveys, social media, web and phone apps, door-to door outreach, and others 2		HIGH	Education/Outreach	4.02
299	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 5 Establish a Climate Action webpage with accessible materials including how-to guides and information about climate adaptation and mitigation actions, educational resources, workshops, and climate economy job opportunities. 2		MED	Education/Outreach	4.02
300	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 6 Engage with community partners such as Century College, Ramsey County, State of Minnesota, non-profits, and others to identify unmet community needs, barriers and opportunities to improve access to the green job economy for all community members. 2		LOW	Economics	
301	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Support equitable climate action.		AC-2- 7 Ensure the availability of translators and interpreter services for all outreach events and materials. 2		LOW	Education/Outreach	
302	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish a climate impacts mutual aid program.		AC-3- 1 Coordinate with County, State, surrounding communities, Red Cross, and utilities to establish a Mutual Aid and Response program. Program to focus on range of current and projected risks and hazards including flooding, extreme weather, storms, power outage, and emergency debris management. Agreement can be modeled on, or expand existing fire and public safety mutual aid agreements. 1		LOW	Emergency Response	
303	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish a climate impacts mutual aid program.		AC-3- 2 Develop strategies to check on individuals at greatest risk during extreme weather and extreme temperature events. Explore partnerships for provision of options for cooling/warming centers for vulnerable populations. 1		LOW	Social Vulnerability	
304	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish a climate impacts mutual aid program.		AC-3- 3 Organize a transportation-assistance program for individuals without access to vehicles. Explore partners such as Metro Transit, Ramsey County Library, nonprofit groups, hospitals, and retail centers. 2		LOW	Transportation	
305	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish financing to support the City's Climate Action efforts.		AC-4- 1 Generate Local Revenue through tiered stormwater fees. The City should develop a tiered schedule for stormwater fees for all development, commercial and residential, existing and proposed. These fees should be based on actual impact. 1		LOW	Economics	

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306	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish financing to support the City's Climate Action efforts.		AC-4- 2 Conduct a study to establish an Urban Forestry Product program to sell wood products, and dedicate funds to climate action plan strategy implementation. Revenue sources could include: sale of Ash tree logs removed as a part of the City's EAB management plan (example marketplace: Wisconsin Urban Wood, City of Eau Claire model: http://wisconsinurbanwood.org/sample-municipal-models/), selling tree storm debris and tree trimming waste to waste-to-energy plant or pelletizer, selling sugar taping rights and nut harvesting rights to Maple, Birch, and Walnut trees located on City property and right of way responsibility. 1		**LOW**	Economics	
307	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish financing to support the City's Climate Action efforts.		AC-4- 3 Adopt a "resilience penny" property tax increase of $0.01 per $100 of assessed value and dedicate additional funds for climate mitigation and climate adaptation strategies. Funds may be used directly, or may be used as a repayment source for a bond issue. 2		**MED**	Economics	
308	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish financing to support the City's Climate Action efforts.		AC-4- 4 Capturing savings from City Facility energy efficiency and renewable energy projects from all city departments. Performance-based rebate checks and operational savings are to be directed to a special Carbon Fund, with the funds being used to implement carbon-reducing projects that align with the Climate Action Plan.2		**LOW**	Economics	
309	Maplewood Climate Action [Adaptation] Plan	2021 (Revised)				Adaptation Capacity	Establish financing to support the City's Climate Action efforts.		AC-4- 5 Dedicate all, or a portion, of the City's Utility Franchise Fee to a climate action and adaptation fund to fund projects which align with the City's Climate Action Plan. Alternatively, City could increase the Utility Franchise Fee and dedicate the increased value to the Climate Fund 2		**LOW**	Economics	
310	Met Council Priority Climate Action Plan (draft)	2024	The GHG Strategy Planning Tool quantifies how a range of specific strategies may reduce future GHG emissions relative to baseline at the city- and township-level. This tool was developed in collaboration with academic partners in the Sustainable Healthy Cities Network alongside Metropolitan Council staff, with engagement and input from local governments and other regional stakeholders.	Citations not evident. Probably provided in other documentation linked in this paper.	The Council has organized GHG reduction measures into the following sectors: • Building Energy • Transportation • Land Use • Waste		Building Energy Sector		Retrofit existing residential homes; Retrofit existing commercial buildings; Energy efficient new homes; Clean electricity; Increase multifamily housing stock		**LOW**	GHG emission/energy efficiency	

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311	Met Council Priority Climate Action Plan (draft)	2024					Transportation Sector		Increase battery electric vehicle (BEV) market share; Accelerate transition to low- and no-carbon fuels in vehicles and equipment; Increase public transportation options; Promote telework; Encourage reduction of reduced vehicle miles traveled (VMT)		**LOW**	Transportation	
312	Met Council Priority Climate Action Plan (draft)	2024					Land Use Sector		Increase population density; Increase employment density		**LOW**	Economics	
313	Met Council Priority Climate Action Plan (draft)	2024					Conservation and carbon stock sector		Invest in climate smart agriculture; Invest in localized and urban agricultural practices; Invest in urban tree planting and maintenance; Natural land restoration and protection.		**MED**	Agriculture	
314	Met Council Priority Climate Action Plan (draft)	2024					Waste Sector		Promote waste prevention, reduction, and recycling; Efficient wastewater management.		**LOW**	Waste reduction	
315	Minneapolis Climate Equity Plan	2023	**Community Listening** Listening sessions began in February 2022. We met with many community groups, including: • Hmong community • Lao Assistance Center • Little Earth Community • Native American Community • One Family One Community • Climate Generation • St. Paul Lutheran Church (Latinx and seniors) • Somalian and Oromo Community Tabling at community events: • Somali Independence Day • Juneteenth Celebration • Urban League Family Day • West Broadway Open Streets; **Working Groups; Steering Committee; Virtual Open Forum; Online Survey.**	Not evident.	Air 30 Buildings & Industry 33 City Operations & Enterprise 39 Economy & Workforce 42 Energy Systems 44 Food and Zero Waste Circular Economy 50 Green Space & Trees 57 Healthy Homes 64 Transportation & Complete Streets 69 Water 74	**Vision** Achieve an environmentally just, resilient, low-carbon and equitable City. **Mission:** We collaborate with residents to advance environmentally just policies that achieve deep carbon emission reductions, repair past environmental injustices perpetrated upon Indigenous, Black and Communities of Color, and create solutions for a sustainable, inclusive economy.	Climate Equity; Health; Wealth; Climate.				**LOW**	Natural Resources	
316	Minneapolis Climate Equity Plan	2023				A Carbon-Neutral Minneapolis by 2050	Achieve Net Zero Greenhouse Gas Emissions by 2050 following the Race to Zero accelerated action path — and not exceed the total city-wide cumulative carbon budget through 2050.				**LOW**	GHG emission/energy efficiency	

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317	Minneapolis Climate Equity Plan	2023				Air	Reduce outdoor and indoor air pollution to improve health outcomes—such as reducing asthma rates—with a focus on the Green Zones, and other neighborhoods and households experiencing cumulative air quality impacts.				**LOW**	Air Quality	
318	Minneapolis Climate Equity Plan	2023				Buildings & Industry	1) Equitably reduce GHG Emissions from the industrial, commercial and multi family building sector by 75% by 2030. 2) Ensure all new City Enterprise Buildings, and City funded buildings will be net zero GHG by 2030.				**LOW**	GHG emission/energy efficiency	
319	Minneapolis Climate Equity Plan	2023				City Operations & Enterprise	1) Establish a Climate Legacy Initiative to support the Climate Equity Plan Implementation. 2) Achieve Net Zero GHG emissions by 2040 for all City Operations. 3) Ensure Climate Investments and Programs are accountable to the community, meet the Federal Justice40 requirements, and prioritize Green Zones and Environmental Justice Communities.				**MED**	Social Vulnerability	
320	Minneapolis Climate Equity Plan	2023				Economy & Workforce	1) Prepare multiple Green Career Pathways for Minneapolis Residents 2) Support new green businesses and expansion of existing Minneapolis businesses.				**LOW**	Economics	
321	Minneapolis Climate Equity Plan	2023				Energy Systems	1) Reduce emissions from fossil gas citywide by 35% by 2030. 2) Achieve 100% Renewable Electricity by 2030 citywide. 3) Establish a franchise fee structure by 2025 that promotes both conservation and GHG emission reduction, and utilizes additional revenue for accelerated, equitable climate action.				**LOW**	GHG emission/energy efficiency	
322	Minneapolis Climate Equity Plan	2023				Food and Zero Waste Circular Economy	1) Reduce the carbon and environmental impact of agriculture and food systems by purchasing 10% of foods which are grown in Minneapolis or produced in Minnesota or within 250 miles using sustainable or regenerative agricultural practices by 2033. 2) Achieve a zero-percent growth rate in the total waste stream from 2010 levels through a culture of reduced consumption and repair/reuse by 2030. 3) Recycle and compost 80% of citywide waste by 2030.				**LOW**	Waste reduction	

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323	Minneapolis Climate Equity Plan	2023				Green Space & Trees	1) Increase the quality and quantity of green space. 2) Make greenspaces accessible, welcoming and supportive for all community members.				**MED**	Parks/Green Space	
324	Minneapolis Climate Equity Plan	2023				Healthy Homes	1) Ensure all 1-4 unit homes and apartments are adequately insulated and weatherized by 2040 starting with Green Zones. 2) Eliminate the number of households with a housing energy burden over 6% by 2030. 3) Begin transition to all electric homes.				**LOW**	GHG emission/energy efficiency	
325	Minneapolis Climate Equity Plan	2023				Transportation & Complete Streets	1) Provide access to a variety of carbon-free transportation options that are safe, reliable and cost effective. 2) By 2030, 3 of 5 trips are taken by people walking, biking or riding transit. 3) By 2030: 25% of all cars registered in the City are electric.				**LOW**	Transportation	
326	Minneapolis Climate Equity Plan	2023				Water	Clean and affordable municipal and sanitary wastewater systems that reduce GHG emissions and increase system resiliency.				**LOW**	GHG emission/energy efficiency	
327	Minnehaha Cr WD Climate Action Framework	2022	Board of Managers (2019; 2021–2022); Citizens Advisory Committee (2020–2022); EXTERNAL ADVISORS (2022) MCWD technical and legal advisors reviewed the Climate Action Framework to provide guidance on our strategy and approach. Special thanks to Kenny Blumenfeld (State Senior Climatologist, Minnesota Department of Natural Resources), Louis Smith (Smith Partners), Chuck Holtman (Smith Partners), and Christopher Meehan (District Engineer, Stantec).	The Minnesota State Climatology Office gathers, archives, manages, and disseminates historical climate data in order to address climate impact questions. To learn more and explore climate data you can visit: https://climateapps.dnr.state.mn.us/index.htm	IMPACTS & VULNERABILITIES: **Rising Temperatures** • Warmer temperatures, especially at night and during winter • More high-heat days, extreme heat events, and periods of drought • Increased algal growth and reduced water quality and clarity • Degraded habitat quality and increased stress to native species. **Increasing Intensity & Frequency of Precipitation** • Increased frequency and magnitude of damaging floods • Increased strain on buildings, roads, and storm sewer systems • More pollution in waterways due to increased erosion and stormwater runoff • Degraded habitat quality and increased stress to	GUIDING PRINCIPLES: Sound Science, Partnership, Flood Adaptation, Watershed-Scale Solutions	PILLAR 1: UNDERSTAND & PREDICT		Real-Time Water Level Monitoring, Flood Forecasting, Vulnerability & Scenario Planning		**HIGH**	Monitoring	1.02 1.04
328	Minnehaha Cr WD Climate Action Framework	2022					PILLAR 2: CONVENE & PLAN		Learning the challenges facing partners, Using a new 2D watershed model, Aligning goals, priorities, and strategies		**HIGH**	Flooding	1.03

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329	Minnehaha Cr WD Climate Action Framework	2022					PILLAR 3: IMPLEMENT, MEASURE, & ADAPT		Delivering high-impact projects, Shaping policy; Upper Watershed, Lower Watershed, Gray's Bay Dam		**MED**	Natural Resources	
330	Ramsey County Climate Action Equity Plan	2024	Building on the work of the county's past Energy Governance Team, the Strategic Energy Plan, Ramsey County's 2040 Comprehensive Plan, the State of Minnesota's Climate Equity Action Plan and community input, this climate equity action plan outlines the near-, middle-, and long-term actions planned to respond to climate change and increase community resilience. The climate equity action plan development process was designed to include community member's stated needs and consider the role and capacity of Ramsey County to advance this work.	State of Minnesota's Climate Action Framework	Clean Transportation, Climate Smart Natural Land, Thriving Communities, Clean Energy and Efficient Buildings, Healthy Lives, Clean Economy	Clean Transportation	Plan a transportation network that supports sustainable, multi-modal transportation in alignment with the county's Equitable Development Framework and racial equity policy.		Prioritize new or reconstructed multi-modal transportation projects that close infrastructure gaps, such as sidewalks, bike trails, and bus stations for people walking, bicycling, rolling, and taking transit. Ensure these projects are prioritized to improve equitable access to infrastructure, safety, and roadway function.	Track state and federal funding opportunities and collaborate with the Metropolitan Council (Met Council) to direct more resources towards non-motorized transportation and public transit. Funds would support improved pedestrian, bicycle and public transit facilities that are accessible, safe, and desirable to people of all ages, abilities and skill levels.	LOW	Transportation	
331	Ramsey County Climate Action Equity Plan	2024	Hiring Equity Strategies, LLC. to conduct seven virtual listening sessions, attended by 100+ residents.			Clean Transportation	Plan a transportation network that supports sustainable, multi-modal transportation in alignment with the county's Equitable Development Framework and racial equity policy.		Promote multi-modal transportation options, including pedestrian, bicycle, and public transit, in county plans and projects.	Use community input and data to understand evolving transportation needs of underserved and climate-vulnerable communities, apply findings to transportation plans.	LOW	Transportation	
332	Ramsey County Climate Action Equity Plan	2024	Offering an online survey for individuals unable to attend the listening sessions which received 100+ responses.			Clean Transportation	Plan a transportation network that supports sustainable, multi-modal transportation in alignment with the county's Equitable Development Framework and racial equity policy.			Review and advocate for MnDOT and Met Council transportation plans to prioritize new or reconstructed multi-modal transportation projects that: 1) include facilities for people walking, bicycling, rolling, and taking transit, and 2) increase frequency and quality of electrically powered transit service.	LOW	Transportation	
333	Ramsey County Climate Action Equity Plan	2024	Partnering with the University of Minnesota's Resilient Communities Project to develop an iterative, ongoing climate action community engagement plan.			Clean Transportation	Plan a transportation network that supports sustainable, multi-modal transportation in alignment with the county's Equitable Development Framework and racial equity policy.			Use the Equitable Development Framework to encourage developers, employers, and communities to adopt practices and policies that equitably expand spaces for people to walk, bike and roll.	LOW	Transportation	

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334	Ramsey County Climate Action Equity Plan	2024	Hosting two climate action community conversations: In June 2023, 82 community members convened to discuss and prioritize action items from the state's framework; in October 2023, another 48 community members convened to critique a draft of the county's framework, which incorporated feedback from internal county review teams and community engagement efforts.			Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Improve access to and accessibility of non-motorized vehicle infrastructure and support Met Council and Metro Transit in providing free or reduced cost transit.		LOW	Transportation	
335	Ramsey County Climate Action Equity Plan	2024	Page 31 of the document provides a description and links to eight documents described as 'Other Plans Referenced in This Document'.			Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Advocate for safety-related improvements to public transit, such as cleanliness, on-time performance and expanded routes as well as connections for riders to community security contacts and social service providers.		LOW	Transportation	
336	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Provide educational opportunities for residents on how to safely use and access public transit and multi-modal networks.		LOW	Transportation	
337	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Launch projects that temporarily demonstrate improvements for people walking and biking to assess opportunities for permanent improvements.		LOW	Transportation	
338	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Research options for an affordable, county-wide bike share program that is accessible to everyone, including people who do not have bank accounts.		LOW	Transportation	
339	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Make it equitable and easier for all ages and abilities to use the multi-modal transportation network.		Encourage local governments to implement transportation demand management policies.		LOW	Transportation	
340	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Offer telecommuting as an emissions reduction strategy through increased flexibility in telework and hybrid work schedules for county staff, particularly on poor air quality and extreme weather days.	Share information about grant funding to support electric vehicle purchases and charging station installation for residents and local governments.	LOW	Transportation	
341	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Coordinate with partners to manage stormwater and support transportation infrastructure resilience to extreme weather.	Encourage clean vehicle targets for city government and private sector fleets.	LOW	Transportation	
342	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Accelerate the retirement and replacement of inefficient county vehicles.	Support state-level actions that increase electric vehicle charging infrastructure, increase electric vehicle access and availability, and educate communities about financial support available to purchase electric vehicles.	LOW	Transportation	

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343	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Advocate for state and federal standards that prioritize the reuse of materials throughout construction processes to minimize carbon footprint of transportation construction projects.	Establish clean vehicle expectations for county procurement contracts.	LOW	Transportation	
344	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Research options for a county-wide, affordable, electric vehicle car rental/share system.		LOW	Transportation	
345	Ramsey County Climate Action Equity Plan	2024				Clean Transportation	Reduce transportation-related greenhouse gas emissions within the county.		Put safe and accessible bike facilities at county-owned facilities where feasible based on facility use.		LOW	Transportation	
346	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Maintain, expand and manage forests and urban tree canopies, following the Natural Resources Management Plan.		Where appropriate, plant, seed and maintain tree species and vegetation projected to do well under changing conditions.	Plant a variety of trees to expand urban tree canopy cover in underrecognized and vulnerable communities experiencing the urban heat island effect, prioritizing areas with minimal tree canopy cover.	MED	Vegetation	5.01
347	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Maintain, expand and manage forests and urban tree canopies, following the Natural Resources Management Plan.		Help residents manage emerald ash borer and other plant pests and diseases, particularly in underrepresented and climate vulnerable communities, through treatment, removal/replacement, and proper disposal.	Assess urban canopy cover and other urban tree baseline data across the county to help track and measure changes in tree canopy coverage.	MED	Vegetation	5.01
348	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Maintain, expand and manage forests and urban tree canopies, following the Natural Resources Management Plan.		Provide guidance for residents and landowners on climate adapted tree species.	Preserve mature trees by encouraging heritage tree preservation and general tree maintenance. Assist underrecognized and climate-vulnerable communities in advocating for tree ordinances and policies to protect urban tree canopy—especially within commercial and residential building sites.	MED	Vegetation	5.01
349	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Maintain, expand and manage forests and urban tree canopies, following the Natural Resources Management Plan.			Plant and maintain climate-adaptive shade trees across the county. Prioritize underrecognized and climate vulnerable communities, to decrease energy use in homes and buildings, mitigate heat islands and provide funding for replacing pest infected or diseased trees.	LOW	Vegetation	
350	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Maintain, expand and manage forests and urban tree canopies, following the Natural Resources Management Plan.			Partner to produce climate-adapted tree species for planting in Ramsey County.	LOW	Vegetation	
351	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Protect, restore and manage peatlands, wetlands and watersheds.		In alignment with Wetland Conservation Act: Protect and restore existing wetlands through conservation easements, wetland banking, and other stormwater best management practices.	Provide community education on importance of, and strategies for, protecting watersheds and wetlands.	HIGH	Education/Outreach	4.02 5.01

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352	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Protect, restore and manage peatlands, wetlands and watersheds.		Partner on resilience studies with watershed management organizations within the county.	Determine if the county can offer incentives to residents and businesses for replacing lawns with climate friendly, native/adapted, sustainable plants.	MED	Vegetation	
353	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Work with local governments in developing local land conservation plans, collaboratively identifying priority locations for protection, restoration and greater natural corridor connectivity.		MED	Natural Resources	5.01
354	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Increase native-and adapted-species diversity in county owned or managed grasslands and forests through restoration and management. Use locally appropriate seed and plant mixes and alternative forest management practices.		MED	Vegetation	5.01
355	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Engage with underrecognized communities to balance the various needs of residents in public open spaces.		MED	Parks/Green Space	4.01 4.02
356	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Identify, remove and dispose of trees at risk of spreading disease or invasive pests.		MED	Vegetation	
357	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Promote the right to exist and inherent value of wildlife and plants by: 1. Planting trees and vegetation that provide food or shelter to wildlife and 2. Protecting wildlife habitat through community education.		LOW	Vegetation	
358	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Provide education focused on land management practices that residents and businesses can use to enhance climate resilience on their property or in their neighborhood. Share information with residents about how many small-scale projects - like a native and/or adapted pollinator garden, a suburban boulevard tree, an urban agriculture garden or an alternative land management strategy - build meaningful climate benefits.		HIGH	LID	
359	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Improve parks, community gardens and green spaces in underrepresented and climate-vulnerable communities.		HIGH	Parks/Green Space	5.01
360	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Manage invasive species.		HIGH	Invasive Species	1.02
361	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Collaborate between departments to increase climate resilience of landscape management practices around county-owned buildings.		HIGH	LID	3.05
362	Ramsey County Climate Action Equity Plan	2024				Climate Smart Natural Land	Use land management practices that enhance climate resilience.		Develop an herbivore management or herbivore mimicry plan for managing invasive species in county parks and natural lands.		LOW	Invasive Species	
363	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Provide technical assistance, tools and data.		Develop metrics that help residents understand how and where the county is making progress towards greater community resilience.		HIGH	Education/Outreach	4.02 4.03

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364	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Provide technical assistance, tools and data.		Create web content that improves visibility of and access to climate information, identifies strategies to help communities expand their resilience and includes translated material.		HIGH	Education/Outreach	4.02 4.03
365	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Provide technical assistance, tools and data.		Overlay environmental justice areas of concern with map of where people at greatest risk to climate impacts live and where community assets exist to focus resources on communities at greatest risk of experiencing the negative impacts of climate change.		HIGH	Social Vulnerability	2.02
366	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Provide technical assistance, tools and data.		Integrate ongoing adaptation strategies into county hazard mitigation plans using Minnesota's state hazard mitigation plan as a resource. Work with underrepresented and climate vulnerable communities, to ensure individuals have a plan for extreme weather events, including contingencies for multiple events such as a heat wave after flooding.		HIGH	Emergency Response	2.02
367	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Support information sharing and learning through community networks.		Increase capacity within the county to develop and implement programs, best practices, resources, incentives and communications with residents to encourage more sustainable consumption, behaviors and use of sustainable materials and products.	Participate in underrecognized and climate vulnerable community-led events and conversations. Develop authentic, trust-based relationships and programs and services, based on changing community vulnerabilities and needs.	HIGH	Education/Outreach	
368	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Support information sharing and learning through community networks.			Provide training on county climate action to trusted messengers or hire climate navigators to provide residents with information about available resources.	MED	Education/Outreach	
369	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Support information sharing and learning through community networks.			Provide technical assistance to Ramsey County cities to develop and share adaptation resources across communities.	MED	Education/Outreach	5.03 5.04
370	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Support information sharing and learning through community networks.			Engage with partners to utilize up-to-date climate modeling data, technical assistance and research on building adaptation strategies.	HIGH	LID	1.03 1.04 2.01 2.02 2.03 2.04 2.05 5.05
371	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Protect culturally important activities.			Work with underrepresented and climate-vulnerable communities to support and co-develop projects that acknowledge and address the impacts of changing ecosystems on mental health and wellbeing.	LOW	Social Vulnerability	
372	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Protect culturally important activities.			Protect and restore outdoor spaces from extreme weather impacts by collaborating with outdoor recreational stakeholders and partners that have staff and leadership who represent their communities.	MED	Parks/Green Space	

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373	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Protect culturally important activities.			Collaborate with underrepresented and vulnerable communities, and community-based organizations to identify and protect culturally significant places threatened by climate change.	LOW	Social Vulnerability	
374	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Develop quantifiable metrics to measure and communicate information related to safe and sufficient drinking water.	Identify and mitigate risk in areas beyond current FEMA-mapped floodplain areas and encourage no-net-loss of floodplain storage in response to projected climate conditions.	HIGH	Flooding	2.01 2.02 2.03 2.04 2.05
375	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Assess vulnerabilities and develop a financial plan for improvements to county owned critical facilities. Use climate projections to identify ways to ensure continuity of operations.		MED	Infrastructure	
376	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Collaborate with communities, local organizations and local governments to create resilience hubs based in community centers or other public buildings. These would provide culturally responsive services and support during climate-related events, such as extreme heat, extreme cold, flooding, air quality alerts and power loss.		MED	Social Vulnerability	
377	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Increase water storage and water management to hold or distribute water during and after large rain events in urban landscapes. This includes restoring wetlands to support water storage in flood-prone areas which would protect buildings and infrastructure and support watershed health.		HIGH	Flooding	2.04 2.05 3.02
378	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Reduce consumption and support reuse of water to increase resilience to drought.		MED	Water conservation	
379	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Provide information to help residents reuse water for increased resilience to drought.		MED	Water conservation	
380	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Pursue resilient infrastructure and critical facilities updates.		Include the use of green stormwater infrastructure practices in county-funded and/or owned developments and along roadways within stormwater regulatory programs to increase resilience to floods.		HIGH	LID	3.02 5.01
381	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Reduce waste and promote beneficial use of materials.		Develop and implement programs that increase composting across the county to build soil health.		MED	LID	
382	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Reduce waste and promote beneficial use of materials.		Reduce barriers for local and regional food donation and food rescue organizations, and climate sensitive food-to-animal programs.		LOW	Agriculture	
383	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Reduce waste and promote beneficial use of materials.		Expand access to waste reduction strategies such as public or commercial anaerobic digestion and compost facilities.		LOW	Waste reduction	

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384	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Reduce waste and promote beneficial use of materials.		Provide local governments with guidance and resources to conduct public education campaigns focused on prevention of wasted food, zero waste challenges and building stronger food security networks.		LOW	Waste reduction	
385	Ramsey County Climate Action Equity Plan	2024				Thriving Communities	Reduce waste and promote beneficial use of materials.		Incentivize beneficial uses for wood and debris that results from increased tree pests, diseases and more frequent storms.		MED	Waste reduction	
386	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Track and reduce energy use and pursue 100% carbon-free energy sources in county-owned facilities.		Identify opportunities to electrify energy used in county owned buildings.		LOW	GHG emission/energy efficiency	3.05
387	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Track and reduce energy use and pursue 100% carbon-free energy sources in county-owned facilities.		Invest in infrastructure updates that reduce emissions and increase energy efficiency in county-owned buildings.		LOW	GHG emission/energy efficiency	3.05
388	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Track and reduce energy use and pursue 100% carbon-free energy sources in county-owned facilities.		Expand training for county facilities managers on best practices for reducing energy use.		LOW	GHG emission/energy efficiency	
389	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Track and reduce energy use and pursue 100% carbon-free energy sources in county-owned facilities.		Create renewable energy guidelines for county-owned buildings.		LOW	GHG emission/energy efficiency	3.05
390	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Track and reduce energy use and pursue 100% carbon-free energy sources in county-owned facilities.		Explore options for an internal county financial energy reduction incentive to encourage and expand department-based reductions in energy use, including facilities and transportation energy.		LOW	GHG emission/energy efficiency	
391	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Increase ability of county-owned and county-funded buildings to withstand the impacts of climate change.		Adopt requirements based on best management practices for reducing energy use for county programs that invest in new or rehabbed buildings.	Evaluate reuse/recovery of wasted thermal energy to heat and cool existing buildings.	LOW	GHG emission/energy efficiency	
392	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Increase ability of county-owned and county-funded buildings to withstand the impacts of climate change.		Encourage developers of new county-owned or county-funded housing construction and rehabilitation to plan for resiliency/adaptation (e.g., electrification, waterproofing, raising mechanicals, coordinating energy improvements, installing passive cooling building and landscape features), while increasing affordability and maintaining urban density.		LOW	GHG emission/energy efficiency	
393	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Increase ability of county-owned and county-funded buildings to withstand the impacts of climate change.		Research options for lowering energy burden through design criteria for affordable housing.		LOW	GHG emission/energy efficiency	
394	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Increase ability of county-owned and county-funded buildings to withstand the impacts of climate change.		Adapt energy goals for county-owned buildings utilizing real-time monitoring of building energy consumption and recommend strategies for energy use reduction.		LOW	GHG emission/energy efficiency	

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395	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Provide resources to residents on alternative energy and energy efficiency options.		Research options for financially supporting underrepresented and climate vulnerable residents to reduce energy burden by utilizing alternative energy at home.		LOW	GHG emission/energy efficiency	
396	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Provide resources to residents on alternative energy and energy efficiency options.		Identify opportunities to consolidate and streamline programs providing energy assistance, weatherization, and utility efficiency to make them easier to access, navigate and scale up in both multifamily and single-family buildings. Develop strategies specific to both renters and homeowners - especially in multi-family housing upgrades and for underrecognized and climate vulnerable communities.		LOW	GHG emission/energy efficiency	
397	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Provide resources to residents on alternative energy and energy efficiency options.		Share clear guidance on alternative energy resources for Ramsey County's cities to share with residents.		LOW	GHG emission/energy efficiency	
398	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Provide resources to residents on alternative energy and energy efficiency options.		Develop policies and support community-based organizations to ensure efficient and functional heating/cooling is provided to tenants.		LOW	GHG emission/energy efficiency	
399	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Design and build climate-smart new buildings.		Adopt standards for incorporating climate resilience into design and construction of county development projects.	Support recycling of construction waste that cannot be reused in the construction market. Invest in the development and expansion of recycling markets for building materials.	LOW	Waste reduction	
400	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Design and build climate-smart new buildings.		Support and promote adaptive reuse of existing buildings to reduce construction waste and retain embodied carbon in existing construction materials.	Promote the use of low-carbon and reused and recycled construction materials in new building designs.	LOW	Waste reduction	
401	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Design and build climate-smart new buildings.		Create a policy around electric vehicle readiness in county facilities.		LOW	GHG emission/energy efficiency	
402	Ramsey County Climate Action Equity Plan	2024				Clean Energy and Efficient Buildings	Design and build climate-smart new buildings.		Expand deconstruction and reuse of construction materials where demolition cannot be avoided.		LOW	Waste reduction	
403	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Co-develop plans and utilize data to influence policies and systems that support healthy communities and workplaces.		Evaluate safety of people living within Ramsey County jails, shelters, and other congregate settings during extreme weather events, particularly heat waves, by engaging with those individuals and propose infrastructure adaptations to	Review the potential health, environmental justice and pollution reduction impacts of sites chosen for new county-owned or county-funded construction projects.	MED	Public Health	

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404	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Co-develop plans and utilize data to influence policies and systems that support healthy communities and workplaces.		Reevaluate preparedness and response plans at regular intervals, and identify resources needed for planning and responding to climate-related events such as extreme heat, drought, flood and severe storms.		MED	Emergency Response	5.03
405	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Co-develop plans and utilize data to influence policies and systems that support healthy communities and workplaces.		Collaborate with community members to co-create strategies to lessen the impact of climate-related illnesses on physical and mental health for communities at greatest risk.		LOW	Social Vulnerability	
406	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Co-develop plans and utilize data to influence policies and systems that support healthy communities and workplaces.		Update the county's climate change vulnerability assessment with current data, in a user-friendly format, incorporating data on the social determinants of health and climate change projections to identify and anticipate the health impacts of climate		LOW	Public Health	
407	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Share information and resources that supports healthy communities and workplaces.		Co-create, with underrecognized and climate-vulnerable community members, a climate and health community engagement plan that meets people where they are and reaches multiple parts of society.	Partner with educational institutions to teach students about the mental and physical health impacts of climate change and adaptation strategies.	MED	Social Vulnerability	3.06
408	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Share information and resources that supports healthy communities and workplaces.		Provide guidance to county employees on extreme heat and poor air quality to protect the health and safety of outdoor workers and others who spend time outside.		MED	Emergency Response	3.06
409	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Share information and resources that supports healthy communities and workplaces.		Partner with underrecognized and climate vulnerable communities, to raise awareness of the health impacts of climate change, including: 1. Changes to vector-borne, respiratory, cardiovascular and waterborne diseases, 2. Heat illnesses, 3. Poor mental health. Share resources for reducing these impacts.		LOW	Public Health	
410	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Implement programs that support healthy communities and workplaces.		Promote access to culturally-responsive, affordable healthcare and mental health services to protect public health and create a healthy foundation for climate resilience.		LOW	Public Health	
411	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Implement programs that support healthy communities and workplaces.		Ensure uninterrupted access to culturally-responsive healthcare and mental health services provided by the county during and after disasters and expand trauma-informed training for staff.		LOW	Social Vulnerability	
412	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Implement programs that support healthy communities and workplaces.		Prioritize climate actions that also reduce other types of pollution, especially in areas disproportionately impacted by pollution and climate change.		MED	Natural Resources	
413	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Advance food security efforts in alignment with the Strategic Food Security Plan.		Work with local organizations and governments to promote actions that reduce food insecurity and increase access to culturally and medically appropriate foods that meet dietary needs in the face of climate change.	Expand food availability and affordability. Support farmers markets with resources and infrastructure, with support from the Supplemental Nutrition Assistance Program, State Health Insurance Assistance Program and Women, Infants and Children.	LOW	Agriculture	

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414	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Advance food security efforts in alignment with the Strategic Food Security Plan.		Strengthen the food safety net system; Break down barriers to food distribution, food sharing and food rescue.		LOW	Agriculture	
415	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Advance food security efforts in alignment with the Strategic Food Security Plan.		Advocate for policy changes that support local and community-based agriculture to improve transportation and increase food access, especially in underrepresented and climate vulnerable communities.		LOW	Agriculture	
416	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Advance food security efforts in alignment with the Strategic Food Security Plan.		Develop and support policy and infrastructure updates to protect and expand existing community gardens.		LOW	Agriculture	
417	Ramsey County Climate Action Equity Plan	2024				Healthy Lives	Advance food security efforts in alignment with the Strategic Food Security Plan.		Expand urban agriculture. Provide community resources to support development of more urban food gardens.		LOW	Agriculture	
418	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Help resident and business owner applicants in Ramsey County leverage applicable funding.		Develop web resource that describes current funding opportunities applicable to county residents and businesses in plain language.		LOW	Education/Outreach	
419	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Help resident and business owner applicants in Ramsey County leverage applicable funding.		Develop print resources to share information about funding opportunities in community.		MED	Education/Outreach	3.04
420	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Help resident and business owner applicants in Ramsey County leverage applicable funding.		Provide technical assistance, data, resources and support to cities and community-based organizations with a presence in Ramsey County to pursue and leverage climate-focused funding opportunities.		HIGH	Education/Outreach	3.04 5.03 5.04
421	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support the development and growth of businesses leading the just transition to a clean economy in alignment with the Economic Competitiveness and Inclusion Plan.		Work with regional partners to develop strategies that foster sustainable business development and coordination, tailored to each business district within the county.	Support policies that expand transparency and documentation of the durability and repairability of products and materials.	MED	Waste reduction	
422	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support the development and growth of businesses leading the just transition to a clean economy in alignment with the Economic Competitiveness and Inclusion Plan.		Offer technical assistance to help businesses reduce their or their customers/clients' carbon emissions/carbon footprint.		LOW	GHG emission/energy efficiency	
423	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support the development and growth of businesses leading the just transition to a clean economy in alignment with the Economic Competitiveness and Inclusion Plan.		Promote more sustainable consumption where products are more durable, easier to repair, rent or share through training of employees, educating county residents and offering financial incentives for businesses		MED	Waste reduction	
424	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support the development and growth of businesses leading the just transition to a clean economy in alignment with the Economic Competitiveness and Inclusion Plan.		Grow clean economy businesses through engagement with underrecognized and climate-vulnerable communities and partnerships with community-based organizations, educational institutions,		LOW	Economics	

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425	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support the development and growth of businesses leading the just transition to a clean economy in alignment with the Economic Competitiveness and Inclusion Plan.		Develop climate goals and standards within development agreements.		HIGH	LID	3.04 5.01
426	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support just workforce transitions into the green economy.		Identify and address barriers to learning about, training for and transitioning to new climate driven career pathways for residents who are unemployed or underemployed. Make efforts that are		LOW	Economics	
427	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support just workforce transitions into the green economy.		Develop a “Workforce in the Green Economy Plan” for internal and partner use.		LOW	Economics	
428	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support just workforce transitions into the green economy.		Create and share a green economy page on the Ramsey County Means Business website. Provide information on job market trends and positions available in the clean economy.		LOW	Economics	
429	Ramsey County Climate Action Equity Plan	2024				Clean Economy	Support just workforce transitions into the green economy.		Invest in and support climate driven career paths in partnership with the Workforce Innovation Board of Ramsey County. Support jobseekers from underrecognized communities through innovative, holistic		LOW	Economics	
430	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018		- Increased overall precipitation - Increased intense rains - Shifting vegetation zones - Human allergies and vector-	- Extreme weather and temperature - Flood vulnerability - Air quality - Vector-borne disease	Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C1 - Incorporate climate change preparedness activities into existing local government plans and programs as a means to increase resilience while minimizing costs.		C1-1: Adopt adaptation actions which fulfill other societal goals C1-2: Address climate change adaptation and mitigation in locally meaningful ways in the local comprehensive plan.		**LOW**	Public Health	
431	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C2 - Improve effectiveness of on-going adaptation measures.		C2-1: Establish a community engagement effort to develop a detailed climate adaptation implementation plan. C2-2: Involve all vulnerable populations in the community to develop relevant parts of		**MED**	Education/Outreach	
432	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C3 - Strengthen emergency management capacity to respond to weather-related emergencies.		C3-1: Train emergency responders on the risks from climate change and engage them in the process of adaptation planning and resiliency. C3-2: Coordinate with city, county, and state emergency managers for planning coordination. C3-3: Develop, test, train, and update emergency response plans that address likely hazards. C3-4: Promote equity in hazard mitigation, and emergency response and recovery activities. C3-5: After weather-related emergency events, assess response to identify effectiveness and deficiencies. C3-6: Through training, educational materials and other resources, strengthen capabilities of individuals, organizations, and community groups to prepare for and respond to impacts. C3-7: Create map of key infrastructure vulnerabilities and level of risk. C3-8: During Hazard Mitigation Plan Update process include climate change risk assessment and incorporate strategies.		**LOW**	Emergency Response	

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433	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C4 - Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to climate impacts.		C4-1: Create and make available an Emergency Response Toolkit C4-2: Outreach to local community groups representing vulnerable populations C4-3: Link low-income populations, communities of color, older adults and people with disabilities to services related to climate impacts C4-4: Build capacity and leadership within communities most vulnerable to climate		**MED**	Education/Outreach	
434	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C5 - Enhance resilience of critical city operations.		C5-1: Establish mutual aid agreements with neighboring law enforcement, fire, first responders and utilities. C5-2: Conduct climate change impacts and adaptation training for law enforcement, fire, first responders, and utilities. C5-3: Develop emergency response plans that include information on increased risks and vulnerabilities from climate change. C5-4: Explore feasibility of establishing a		**LOW**	Emergency Response	
435	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C6 - Enhance city's capacity for adaptation implementation.		C6-1: Engage in available support for local leaders to establish or enhance emergency shelters. C6-3: Identify funding and financing opportunities to pay for resiliency planning and projects. C6-5: Identify staff responsible for City preparedness, emergency response, and recovery efforts.		**LOW**	Emergency Response	
436	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts	Goal C7 - Secure funding to support City's adaptation efforts.		C7-1: Explore development of sustainability / carbon / or climate fund. C7-2: Develop a list of projects and a list of potential grant or other funding opportunities. C7-3: Examine how existing funding sources can be leveraged to enhance resilience and climate adaptation. C7-4: Leverage Community Development Block Grants		**LOW**	Economics	
437	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H1 - Strengthen emergency management capacity to respond to heat stress and extreme weather.		H1-1: Plan and establish alternative or on-site power supply. H1-2: Develop energy management plans for key facilities and cooling centers. H1-3: Identify key risk areas and infrastructure that is at risk from high heat or extreme weather. H1-6: Make emergency communications available in multiple languages and platforms. H1-7: Develop communication plan, methods, and pathways for when community systmes are non-functional.		**LOW**	Emergency Response	

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438	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H2 - Minimize health issues caused by extreme heat days, especially for populations most vulnerable to heat.		H2-1: Create a Heat Response Plan H2-2: Partner with community-based organizations and local service providers to seniors and people with disabilities H2-3: Improve the energy efficiency of homes, apartments and commercial buildings H2-4: Ensure public safety staff is properly trained re: heat related illness. H2-5: Create a reverse 911 call system to call vulnerable individuals during extreme heat events H2-6: Create an interactive and easy to use website that maps all area cooling centers H2-7: Provide travel vouchers to vulnerable individuals to use during high heat emergencies H2-8: Provide indoor cooling centers and outdoor cooling stations H2-9: Implement a heat alert and response program to prevent heat-related illness H2-10: Increase in heat education at community centers, parks, pools, and City facilities H2-11: Make air conditioned public facilities available		**LOW**	Emergency Response	
439	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H3 - Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to high heat and extreme weather.		H3-2: Provide education and resources about climate risks to the public, especially those most vulnerable H3-3: Develop and distribute culturally appropriate and accessible materials about extreme heat and related respiratory-illness		**MED**	Education/Outreach	
440	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H4 - Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.		H4-2: Identify vulnerable urban tree canopy and develop policies to incentivize, encourage, or require strategic tree planting H4-3: Develop policies and programs which decrease impervious surfaces H4-4: Research, evaluate and pilot porous paving, de-paving, vegetation H4-5: Add or modify park plantings in under-served areas H4-6: Promoting and incentivizing building energy efficiency measures H4-7: Consider development standards/policies/ordinances to increase vegetative cover H4-8: Explore creation of a Heat Island Reduction Incentive / Award program H4-9: Create incentive programs for cool roofs and green roofs. H4-10: Where increased tree canopy is not feasible or appropriate, design and build shading structures		**MED**	Vegetation	

Table 2. Summary of Review of Climate Resiliency Planning Documents

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441	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H5 - Enhance resilience of community tree canopy and park/forest land		H5-1: Conduct a City Tree Canopy and Land Cover Survey. H5-2: Evaluate the impact of the City's tree codes and modify. H5-3: Develop a tree planting incentive program for residents. H5-4: Develop a climate adaptive ready tree species list. H5-5: Apply the latest climate science in revision of urban tree canopy goals. H5-6: Participate in State and Federal urban forestry assistance programs. H5-7: Build community gravel beds to raise bare root tree stock. H5-8: Create a Citizen Pruner program		**MED**	Vegetation	
442	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H6 - Enhance the resilience of buildings within the community to extreme heat, weather, and energy and fuel disruptions.		H6-2: Promote businesses and residents exploring making their building sites solar resilient. H6-3: Adopt policies to incentivize building owners to increase the resilience of existing and new buildings.		**LOW**	GHG emission/energy efficiency	
443	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H7 - Improve the energy efficiency and weatherization of homes and businesses to reduce energy costs and carbon pollution.		H7 - 1 Explore development of a Living Buildings or Living Community district. H7-2: Create a building weatherization program. H7-3: Promote the Weatherization Assistance Program to lower incomes.		**LOW**	GHG emission/energy efficiency	
444	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H8 - Expand access to distributed solar energy in low-income communities in order to lower energy bills, increase access to air conditioning, and decrease carbon pollution levels.		H8-1 Participate in utility programs that incentivize the implementation of wind and solar power. H8-2: Consider promoting the development or use of community solar gardens. H8-4: Fight energy poverty by bringing no-cost solar energy systems to low-incomes. H8-5: Explore Solar+Storage for low- and moderate-income communities.		**LOW**	GHG emission/energy efficiency	
445	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H9 - Enhance resilience of local businesses to extreme weather.		H9-1: Identify local measures to address impacts to local economies. H9-2: Identify local initiatives as cost-saving measures that may lower energy use. H9-3: Identify the unique challenges faced by local businesses during extreme weather events.		**LOW**	Economics	

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446	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H10 - Strengthen social cohesion and networks to increase support during extreme weather events.		H10-1: Strengthen City's Heat Response Plan through collaboration H10-2: Work with health care and social services providers re: services during extreme heat events. H10-3: Work with community groups that serve vulnerable populations to develop targeted support. H10-4: Set up call trees and block networks to check on neighbors during/after extreme weather events. H10-5: Improve the safety and walkability of neighborhood sidewalks H10-6: Increase affordability and accessibility of transit options		**LOW**	Public Health	
447	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H11 - Increase the resilience of natural and built systems to adapt to increased timeframes between precipitation and increased drought conditions.		H11-1: Determine stormwater volume requirements meeting anticipated future storm levels and identify stormwater management systems and infrastructure not capable of meeting projected needs. Prioritize upgrades required and implement. H11-2: Adopt innovative techniques such as vegetated streets to provide habitat diversity and connectivity cobenefits while improving stormwater management.		**HIGH**	Infrastructure	
448	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Heat Stress And Extreme Weather	Goal H12 - Enhance the reliability of the grid during high heat events to minimize fires, brownouts and blackouts.		H12-1: Work with local electric utilities to conduct a grid capacity and conditions assessment.		**LOW**	GHG emission/energy efficiency	
449	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Air Quality Impacts	Goal A1 - Reduce auto-generated particulate matter, tailpipe pollutants, waste heat, and ozone formation.		A1-1: Add bike racks around neighborhood businesses and community spaces. A1-2: Install roadside vegetation that creates effective barriers. A1-3: Conduct a Public Transit and bike infrastructure study. A1-4: Measure City transportation connectivity. A1-5: Develop and implement an Electric Vehicle "EV Ready" strategy. A1-6: Reduce generation of waste heat from mobile sources. A1-7: Plan, design and maintain infrastructure to accommodate autonomous vehicle technology.		**LOW**	Transportation	

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450	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding to Air Quality Impacts	Goal A2 - Increase and maintain air quality for residents and businesses.		A2-2: Promote public awareness of air quality considerations. A2-3: Create a building weatherization program. A2-4: Promote the Weatherization Assistance Program to lower incomes. A2-5: Establish a Green Roof policy. A2-6: Enhance streetscape plantings and tree canopies. A2-7: Explore use of the EPA Midwest Clean Diesel Program A2-9: Conduct education and outreach on the health impacts of air quality issues.		**LOW**	Air Quality	
451	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F1 - Strengthen emergency management capacity to respond to flood-related emergencies.		F1-1: Plan and establish alternative or on-site power supply.		**LOW**	Emergency Response	
452	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F1 - Strengthen emergency management capacity to respond to flood-related emergencies.		F1-4: Identify key risk areas and the infrastructure that is at risk from flooding. Train and educate emergency responders about this risk.		**HIGH**	Flooding	
453	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F1 - Strengthen emergency management capacity to respond to flood-related emergencies.		F1-6: Create map of key infrastructure vulnerabilities and level of risk.		**HIGH**	Flooding	
454	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F1 - Strengthen emergency management capacity to respond to flood-related emergencies.		F1-7: Incorporate trees and vegetation into complete street design.		**MED**	Vegetation	
455	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.		F2-3: Review city codes, drainage rules, and surface waterways to evaluate their ability to protect and improve stream flows, seeps, springs, wetland function, water quality including temperature, vegetation and habitat, and stormwater management during periods of extreme heavy rain. Use the Natural Resource Inventory and other data to track gains and losses, and propose revisions as necessary.		**HIGH**	Natural Resources	
456	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.		F2-4: Explore new and support expansion of voluntary programs promoting increased on-site storm water management such as rain gardens and impervious surfaces (low-cost).		**HIGH**	LID	
457	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.		F2-5: Adopt a storm water credit system to incentivize on-site management.		**HIGH**	LID	
458	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.		F2-6: Provide education and resources about climate risks to the public, especially those most vulnerable to potential impacts of flooding.		**HIGH**	Education/Outreach	
459	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Responding To Flood Vulnerability	Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.		F2-7: Provide education to residents on what actions they can take to reduce their risk to extreme precipitation events and flash flooding.		**HIGH**	Education/Outreach	

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460	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Strategies Responding To Food Insecurity And Foodborne Disease Risks	Goal FI-1 - Increase food security for residents, especially those most vulnerable to food environment.		FI1-1: Conduct a detailed Food Security Assessment. FI1-2: Expand the prevalence of community gardens and family gardens. FI1-3: Promote local food production, sales, and consumption. FI1-4: Develop policies and ordinances which promote, encourage, or require permaculture landscaping. FI1-5: Develop edible landscape zones for city-controlled properties. FI1-6: Continue to support, collaborate on, and implement invasive species control programs. FI1-7: Develop pollinator friendly policies. FI1-8: Attract and promote grocery store and food market investment in food deserts. FI1-9: Identify, map and prioritize food insecure areas and populations.		**LOW**	Agriculture	
461	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Enhancing Economic Resilience In Support of Climate Resilience	Goal E1 - Leverage the economic development opportunities of the Green Economy		E1-1: Leverage Community Development Block Grants. E1-2: Conduct a Climate Economy Economic Development Assessment. E1-3: Develop job training programs focused on building resiliency. E1-4: Conduct a Community-Wide Renewable Energy Potentials Study. E1-5: Foster small business and green business development.		**LOW**	Economics	
462	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Enhancing Economic Resilience In Support of Climate Resilience	Goal E2 - Enhance community resilience through economic resilience		E2-1: Conduct a planning effort focused on identifying economic vulnerabilities and opportunities. E2-2: Explore opportunities to broaden the City's economic base with diversification initiatives. E2-3: Work with community businesses to explore the creation of an incentivized "buy local" campaign. E2-4: Explore development of one or more Green Zones.		**LOW**	Economics	
463	Roseville Population Vulnerability Assessment and Climate Adaptation Framework	2018				Enhancing Economic Resilience In Support of Climate Resilience	Goal E3 - Including Economic Resilience in Emergency Response Planning		E3-1: Make sure key business infrastructure is recognized in the City and County's hazard mitigation and emergency response plans. E3-2: Analyze how risks and hazards may impact the economic community. FI1-2: Explore use of geographic information systems (GIS) to link business data bases to make rapid post-incident impact assessments. E3-4: Ensure redundancy in telecommunications and broadband networks. E3-5: Facilitate in-person discussions with community businesses to build relationships.		**LOW**	Economics	

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464	Saint Paul Climate Action & Resiliency Plan	2019	Five in-person public forums in 2019: Frogtown, West Side, Payne-Phalen, Dayton's Bluff, and Mac-Groveland	IPCC Special Report: Global Warming of 1.5 ºC. https://www.ipcc.ch/sr15/	Paper begins by identifying severity of climate change effects on local communities. Proceeds to discuss approaches to reducing greenhouse gas emissions.	People: Support community resilience among residents to prepare for, withstand, and adapt to climate related impacts. Economic and social wellbeing, emergency preparedness and response.	Climate change mitigation: we need to change where our energy comes from and how we use it.	Buildings: Attaining carbon neutrality in just over 30 years will require aggressive efforts to reduce overall building energy use 50% through efficiency and conservation and convert energy sources to renewable or carbon-free energy.	Saint Paul leads by example, encouraging our business, industrial, institutional, educational, and residential communities to implement aggressive strategies of their own.	Residential (under 5 units): The highest impact actions will be 2) retrofitting buildings with energy efficient equipment and envelope improvements	LOW	GHG emission/energy efficiency	
465	Saint Paul Climate Action & Resiliency Plan	2019		IPCC Special Report: Global Warming of 1.5 ºC. https://www.ipcc.ch/sr15/	Paper begins by identifying severity of climate change effects on local communities. Proceeds to discuss approaches to reducing greenhouse gas emissions.	People: Support community resilience among residents to prepare for, withstand, and adapt to climate related impacts. Economic and social wellbeing, emergency preparedness and response.	Climate change mitigation: we need to change where our energy comes from and how we use it.	Buildings: Attaining carbon neutrality in just over 30 years will require aggressive efforts to reduce overall building energy use 50% through efficiency and conservation and convert energy sources to renewable or carbon-free energy.	Saint Paul leads by example, encouraging our business, industrial, institutional, educational, and residential communities to implement aggressive strategies of their own.	Residential (under 5 units): The highest impact actions will be 3) replacing natural gas appliances with electric and thermal models.	LOW	GHG emission/energy efficiency	
466	Saint Paul Climate Action & Resiliency Plan	2019		The Report from the Interagency Climate Adaptation Team prepared by the Minnesota Pollution Control Agency	Climate Resilience: Acute shocks include sudden, intense events that threaten a sector and examples include floods, heat waves, infrastructure failures, and disease outbreaks. Chronic stressors are ongoing conditions that weaken the fabric of a city on a day-to-day or cyclical basis. This can include unemployment, aging infrastructure, or an overtaxed public transportation system.	Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.	Inspire a culture shift that transforms the community's relationship to energy use, tripling the incremental savings from conservation and renewable energy adoption within 10 years.	Residential Energy Stewardship Targets for 2030, 2040, 2050: Annual household participation in deep energy conservation programs 1,200/yr 3,500/yr 2,500/yr; Annual increase in household participation in Wind Source® or Renewable*Connect® (50% participation by 2030) 3,850/yr 1,000/yr 1,000/yr; Residential solar rooftop capacity (MW) equal to 10% of electric consumption by 2030, 1 MW/year after 2030 50 MW total, 60 MW total, 70 MW total; Percent of new housing designed and constructed to green building standards (accelerate, if possible) 25% 50% 100%.	Energy Smart Homes and Inspiring Communities	Commercial and Industrial: The highest impact actions will be 1) adopting green building standards for new buildings, 2) operating existing buildings more efficiently, and 3) retrofitting buildings with more efficient energy saving equipment.	LOW	GHG emission/energy efficiency	
467	Saint Paul Climate Action & Resiliency Plan	2019		The City of Saint Paul developed a Strategic Framework for Community Resilience, which includes strategies to incorporate climate change adaptation into relevant local and regional plans and projects.	Climate Vulnerabilities: Vulnerable Populations: Age of residents, race and language, income and housing, ability, access to vehicle, respiratory illness. Local impacts include psychologic and trauma	Built Infrastructure: Ensure the long-term integrity and reliability of built infrastructure systems by considering future climate impacts in long-term planning	Lower the energy burden so that no Saint Paul household spends more than 4% of household income on energy costs.	Reduce Resident Energy Burden - 2030, 2040, and 2050 Targets: Annual household participation in low-income deep energy conservation programs 1,600/yr 1,600/yr 500/yr; Annual household participation in low-income community renewable energy programs 1,000/yr 1,000/yr 1,000/yr; Percent of new affordable development designed and constructed to green building standards 100% 100% 100%.	Sustainable Building Policy	Transportation: Reducing transportation emissions is critical to achieving the goal of carbon neutrality by 2050. Transportation emissions are influenced by three main factors: 1) Land use and urban form, 2) mode of transportation, and 3) the types of fuels that are used.	LOW	GHG emission/energy efficiency	
468	Saint Paul Climate Action & Resiliency Plan	2019		A complete vulnerability assessment prepared by Saint Paul Ramsey County Health can be found at https://www.ramseycounty.us/sites/default/files/Government/Leadership/Advisory%20Groups/Community%20Health%20Services%20Advisory%20Committee/CCVA_Official_Z23.pdf	Hazard: heavy rain events, extreme weather events, poor air quality days, extreme heat.		Within 3 years, win commitments of major institutions to achieve carbon neutrality by 2050 and ensure 80% of institutional buildings are actively benchmarked, and within 10 years, help institutions realize a 35% total GHG reduction, with energy efficiency as the leading strategy.	Participation of institutional buildings in energy benchmarking program is expected to be at 100 % in each of the target years 2030, 2040, and 2050.	Step 5 achievement in the Minnesota GreenStep Cities Program	Waste and Water: The City of Saint Paul, through Resolution 14-519, established goals of diverting 40% of waste from landfills by 2020 and 80% by 2030. Water priorities emphasize preservation of safe, quality drinking water and promotion of a culture of water conservation and stewardship.	MED	Water conservation	3.05 5.03

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469	Saint Paul Climate Action & Resiliency Plan	2019			Vulnerability by Location: Air quality, extreme heat, flooding, composite variability.		Adopt multifamily and large commercial sector conservation and renewable initiatives that result in an additional 4% annual reduction in GHG emissions.	Multifamily and Large Commercial Targets 2030, 2040, and 2050: Participation in building energy benchmarking (50k sq. ft.) 100% 100% 100%; Percent of new development designed and constructed to green building standards 10% 100% 100%; Commercial solar rooftop capacity (MW) 100 MW total 130 MW total 160 MW total.		What you can do to reduce emissions: Live car-free, Take fewer flights, Purchase or install green energy, Reduce effects of driving.	LOW	GHG emission/energy efficiency	
470	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure: urban forest, water quality and availability.		Reduce energy consumption and GHG emissions in small and mid-size businesses.	Small & mid-size Commercial Sector Targets for 2030, 2040, and 2050: Annual participation in energy conservation programs 5%/year 5%/yr 5%/yr; Annual participation in green power purchase program 2.5%/yr 2.5%/yr 2.5%/yr; Commercial solar rooftop capacity (MW) 50 MW total 60 MW total 70 MW total.		Building Priorities: Inspire a culture of energy stewardship, Reduce resident energy burden, Engage major public and private institutions on climate leadership, Engage the multifamily and large commercial sector, Inspire through municipal leadership.	LOW	GHG emission/energy efficiency	
471	Saint Paul Climate Action & Resiliency Plan	2019			Built Infrastructure: roads and bridges, water distribution, stormwater, wastewater, energy distribution, hospitals, schools, emergency services, and community centers.		Reduce Single Occupancy Vehicle (SOV) travel demand and prioritize walking, biking, rolling and taking public transit for travel and reduce driving by 40% by 2040.	Reduce Single Occupancy Vehicle (SOV) travel demand with the following Land use and Travel Management Targets for 2030, 2040, and 2050: % Reduction of SOV commuters (from 2015 levels) -10% -40% -50%; % Reduction of per person vehicle miles travelled (VMT) annually -2.5%/yr -2.5%/yr -2.5%/yr		Thermal Opportunities: Combined Heat and Power (CHP) & District Heating and Cooling.	LOW	Transportation	
472	Saint Paul Climate Action & Resiliency Plan	2019					Increase Transit Ridership by increasing transit availability, frequency and reliability to ensure parity with automobile travel times, focusing on the transit market areas defined by Metropolitan Council.	Increase Transit Ridership targets for 2030, 2040, and 2050: Increase mode share of transit from 2015 levels 6% increase in ridership, 25% increase in ridership, 40% increase in ridership.		Waste Priorities: Follow State's waste hierarchy and prevent waste generation, ensure that environmental justice is included in decision-making and program implementation, continue education and outreach in partnership with Ramsey County to increase recycling rates in historically low participation neighborhoods, demonstrate leadership at the city level in operations and at events, coordinate with Ramsey County to properly manage and dispose of debris that results from emergency situations	LOW	Transportation	
473	Saint Paul Climate Action & Resiliency Plan	2019					Enable and increase in biking and walking: Ensure that 85% of Saint Paul residents have safe access to protected active transportation facilities.	Alternative Modes Targets for 2030, 2040, and 2050: Miles of bike/rolling infrastructure: 85 miles of new bikeway constructed 195 miles of new bikeway constructed 300 miles of new bikeway constructed; Walking infrastructure 150 miles of sidewalk gaps closed, 327 miles of sidewalk gaps closed, All sidewalk gaps are closed.		Water Priorities: Preserve safe, quality drinking water sources and distribution systems for the city, promote a culture of water conservation, foster environmental stewardship, engage the community, ensure protections of sacred and significant sites, and heal compromised landscapes.	MED	Transportation	

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474	Saint Paul Climate Action & Resiliency Plan	2019					Increase Electric Vehicle Ownership: Incentivize the sales of electric vehicles and expand charging infrastructure so that 40% of vehicles on city streets are electric by 2030.	EV Targets for 2030, 2040, and 2050: Number of Level 2 chargers deployed: 364 Level 2 Chargers, 600 Level 2 Chargers, As needed; % of on-road vehicles that are EVs: 33%, 80%, 100%; Number of mobility charging hubs: 75, 100, 300			LOW	Transportation	
475	Saint Paul Climate Action & Resiliency Plan	2019					Reduce waste generation: The City of Saint Paul, through Resolution 14-519, established goals of diverting waste 40% by 2020 and 80% by 2030. Saint Paul contracts with haulers to provide recycling and garbage services to residential households.	Waste reduction targets for 2030, 2040, and 2050: Total waste diverted from landfill or resources recovery: 80% 90% 100%; % reduction of annual tons: -2%/yr -5%/yr -5%/yr; % of waste stream composted 5% 10% 15%; % of waste stream recycled 50% 55% 60%.			LOW	Waste reduction	
476	Saint Paul Climate Action & Resiliency Plan	2019					Reduce water consumption: Water conservation helps to save money, reduce energy use, and reduce the use of a valuable resource.	Water reduction targets for 2030, 2040, and 2050: % Reduction in per/person annual water consumption -2%/yr, -2%/yr, -5%/yr; % Reduction in per/job annual water consumption -5%/yr, -5%/yr, -5%/yr.			MED	Water conservation	3.05 5.03
477	Saint Paul Climate Action & Resiliency Plan	2019					Inspire through Municipal Leadership: Achieve carbon neutrality in municipal operations by 2030.	Municipal targets for 2019-2025 and 2025-2030: Annual GHG reductions -9%/yr -9%/yr; Annual renewable energy generation 10%/yr 15%/yr; Annual fleet emissions reductions -9%/yr -9%/yr.			LOW	GHG emission/energy efficiency	
478	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Update city-wide tree canopy assessment every 10-years		MED	Vegetation	5.01
479	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Accelerate tree replacement program in heat-impact and Emerald Ash Borer areas, emphasize diverse replacement	- Support early maintenance and care of trees	MED	Vegetation	5.01
480	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Prioritize tree planting in areas of concentrated poverty and low canopy	- Support early maintenance and care of trees	MED	Vegetation	5.01
481	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Engage groups to partner to plant public and private trees	- Support early maintenance and care of trees	MED	Vegetation	3.04 5.01
482	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Use vegetative cover to help stabilize slopes, reduce slope failure, and minimize waterbody sedimentation		HIGH	Vegetation	3.01 3.02
483	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Expand and connect green spaces especially in underserved communities of high imperviousness		HIGH	Parks/Green Space	5.01
484	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Improve the ecological functionality of and resiliency of parks and open space through green infrastructure		HIGH	Parks/Green Space	5.01

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485	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Foster environmental stewardship, community health, and cultural and ecological learnings along the Mississippi River (Great River Passage Initiative)		MED	Parks/Green Space	5.01
486	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Encourage the use of low-impact landscaping to reduce consumption of water and increase permeability		HIGH	LID	3.01 3.02 3.03 3.04
487	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Encourage the use of Minimal impact Design Standards (MIDs) for new development		HIGH	LID	3.03
488	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.		- Ensure water treatment and distribution infrastructure is resilient to potential hazards	- Collaborate with partner agencies on water quality improvement efforts, including capital projects and programming	MED	Public Health	2.01
489	Saint Paul Climate Action & Resiliency Plan	2019			Natural Infrastructure		Natural Infrastructure: Protect natural infrastructure and enhance it to maximize its ability to mitigate weather and climate impacts.			- Support regional efforts to address groundwater usage and recharge	MED	Groundwater	3.03 5.04
490	South Washington Watershed District Climate Resiliency Plan	2018	Barr Engineering Co. (Barr) and the Freshwater Society assisted the SWWD in facilitating a two-day workshop on promoting climate-change resiliency in September 2017, hosting over 60 staff and stakeholders from many of its member communities, including the cities of Cottage Grove, Woodbury, Newport, St. Paul Park, and Oakdale. Other stakeholders participated, including staff from Washington County, Ramsey-Washington Metro Watershed District, Browns Creek Watershed District, Washington Conservation District, and SWWD staff and board members.	No specific citations found.	Three focus areas: Groundwater, Natural Resources, and Stormwater Infrastructure	Groundwater Recharge	Quantify potential changes in groundwater recharge for projected future climates. Identify areas of high groundwater recharge. Areas of high groundwater recharge are also areas that have greater potential for aquifer contamination from infiltrating water.		Work with communities to establish land use policies and implement best management practices in areas of high groundwater recharge to reduce the potential for contaminants at the surface reaching the groundwater.	Enhance groundwater recharge through stormwater infiltration where appropriate.	HIGH	LID	3.02
491	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater Use	Evaluate resiliency of groundwater system during periods of increased water demand from long-term drought or population growth.		Work with communities to develop watering ban policies, adjustments to water usage fee rates to incentivize lower usage, and water efficiency practices such as water reuse, cost-share programs for turf-to-prairie (xeriscape) conversion, and water efficient appliances and fixtures.	Develop water conservation demonstration sites and alternatives to lawns.	MED	Water conservation	

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492	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater Use	Evaluate resiliency of groundwater system during periods of increased water demand from long-term drought or population growth.		Work with communities to develop watering ban policies, adjustments to water usage fee rates to incentivize lower usage, and water efficiency practices such as water reuse, cost-share programs for turf-to-prairie (xeriscape) conversion, and water efficient appliances and fixtures.	Monitor groundwater levels.	HIGH	Groundwater	1.02
493	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater-Dependent Natural Resources	Update inventories of ecological resources (e.g., wetlands, fens, trout streams, etc.) that depend on groundwater. Evaluate resiliency of groundwater to maintain cool stream temperatures in trout streams for projected future climates and/or reductions in baseflow from increased pumping.		Establish thresholds for water stage, baseflow, and wetland hydrographs based on 2016 MNDNR threshold guidance. Develop policy regarding groundwater use if thresholds are exceeded.	Monitor lake stage, stream base flow and temperature, and wetland levels.	HIGH	Monitoring	1.01 1.02
494	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater-Dependent Natural Resources	Update inventories of ecological resources (e.g., wetlands, fens, trout streams, etc.) that depend on groundwater. Evaluate resiliency of groundwater to maintain cool stream temperatures in trout streams for projected future climates and/or reductions in baseflow from increased pumping.		Establish thresholds for water stage, baseflow, and wetland hydrographs based on 2016 MNDNR threshold guidance. Develop policy regarding groundwater use if thresholds are exceeded.	Implement enhanced infiltration or water conservation practices in areas that would benefit the most vulnerable ecological resources.	HIGH	LID	1.01
495	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater Quality - Nitrates	Identify areas and/or update areas of high vulnerability for aquifer contamination from surface practices. Develop management plans for application of nitrogen in high vulnerability areas.		Develop policies for stormwater management in high vulnerability areas.	Monitor nitrate levels in groundwater.	HIGH	Water quality	
496	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater Quality - Chlorides	Identify areas and/or update areas of high vulnerability for aquifer contamination from surface practices.		Develop policies for stormwater management and deicing practices in high vulnerability areas.	Develop demonstrations on effective deicing practices.	HIGH	Infrastructure	3.03
497	South Washington Watershed District Climate Resiliency Plan	2019				Groundwater Quality - Chlorides	Identify areas and/or update areas of high vulnerability for aquifer contamination from surface practices.		Develop policies for stormwater management and deicing practices in high vulnerability areas.	Improve snow plows to reduce over application of chlorides.	HIGH	Infrastructure	5.03

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498	South Washington Watershed District Climate Resiliency Plan	2018				Groundwater Quality - Per- and Polyfluoroalkyl Substances (PFCs)	Establish plans for emergency and permanent backup water supplies or community interconnects. Work with Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Health (MDH) to identify surface waters that may be impacted by PFC contamination. Work with MPCA and MDH to understand potential threats in migrating PFC plumes from groundwater (and surface water) appropriations stormwater management practices.			Monitor aquatic biota for PFC impacts.	MED	Water Quality	1.02
499	South Washington Watershed District Climate Resiliency Plan	2019				Groundwater Quality - Per- and Polyfluoroalkyl Substances (PFCs)	Establish plans for emergency and permanent backup water supplies or community interconnects. Work with Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Health (MDH) to identify surface waters that may be impacted by PFC contamination. Work with MPCA and MDH to understand potential threats in migrating PFC plumes from groundwater (and surface water) appropriations stormwater management practices.			Educate the public about where their drinking water comes from.	MED	Education/Outreach	
500	South Washington Watershed District Climate Resiliency Plan	2018				Aquatic Invasive Species (AIS) Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging AIS of concern (such as zebra mussels, starry stonewort, Eurasian watermilfoil, bighead carp, and silver carp) and defines roles and actions of management partners. Work with stakeholders to develop an AIS rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of AIS management. Work with communities on herbicide and chemical treatment and mechanical removal policies.	Implement AIS rapid response plan.	HIGH	Invasive Species	1.02
501	South Washington Watershed District Climate Resiliency Plan	2019				Aquatic Invasive Species (AIS) Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging AIS of concern (such as zebra mussels, starry stonewort, Eurasian watermilfoil, bighead carp, and silver carp) and defines roles and actions of management partners. Work with stakeholders to develop an AIS rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of AIS management. Work with communities on herbicide and chemical treatment and mechanical removal policies.	Implement boat launch inspections at vulnerable locations.	MED	Invasive Species	

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502	South Washington Watershed District Climate Resiliency Plan	2020				Aquatic Invasive Species (AIS) Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging AIS of concern (such as zebra mussels, starry stonewort, Eurasian watermilfoil, bighead carp, and silver carp) and defines roles and actions of management partners. Work with stakeholders to develop an AIS rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of AIS management. Work with communities on herbicide and chemical treatment and mechanical removal policies.	Work with partners to implement AIS management projects and programs, such as herbicide treatment of invasive plants and quarantine and chemical treatment of zebra mussels.	HIGH	Invasive Species	1.02
503	South Washington Watershed District Climate Resiliency Plan	2021				Aquatic Invasive Species (AIS) Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging AIS of concern (such as zebra mussels, starry stonewort, Eurasian watermilfoil, bighead carp, and silver carp) and defines roles and actions of management partners. Work with stakeholders to develop an AIS rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of AIS management. Work with communities on herbicide and chemical treatment and mechanical removal policies.	Develop a volunteer program to identify early infestations, such as installing and inspecting zebra mussel plates.	**HIGH**	Invasive Species	
504	South Washington Watershed District Climate Resiliency Plan	2018				Terrestrial Invasive Species Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging invasive species of concern (such as jumping worms, common reed, and oriental bittersweet and Japanese barberry) and defines roles and actions of management partners. Work with stakeholders to develop a terrestrial invasive species rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of terrestrial invasive species management. Work with the Minnesota Department of Agriculture to update the Noxious Weed List with new invasive species such as jumping worms and common reed. Work with Minnesota Department of Natural Resources (MNDNR) to review possible species eligible for restricted status.	Work with partners to implement invasive species management projects and programs, such as common reed identification and control, and jumping worm spread prevention.	**HIGH**	Invasive Species	
505	South Washington Watershed District Climate Resiliency Plan	2019				Terrestrial Invasive Species Management	Create a District-wide invasive species monitoring and management plan that prioritizes species and emerging invasive species of concern (such as jumping worms, common reed, and oriental bittersweet and Japanese barberry) and defines roles and actions of management partners. Work with stakeholders to develop a terrestrial invasive species rapid response plan.		Develop policy around SWWD role and responsibilities (including grant funding) of terrestrial invasive species management. Work with the Minnesota Department of Agriculture to update the Noxious Weed List with new invasive species such as jumping worms and common reed. Work with Minnesota Department of Natural Resources (MNDNR) to review possible species eligible for restricted status.	Develop programs to encourage control and removal of invasive species on private property.	**HIGH**	Invasive Species	3.04
506	South Washington Watershed District Climate Resiliency Plan	2018				Natural Areas Preservation and Wildlife Corridor Enhancement	Develop a natural areas preservation plan within the SWWD with appropriate partners such as the MNDNR and Washington County.		Work with MNDNR and other agencies to develop policies to preserve priority habitats.	Conduct natural resource inventories where necessary.	**HIGH**	Natural Resources	
507	South Washington Watershed District Climate Resiliency Plan	2019				Natural Areas Preservation and Wildlife Corridor Enhancement	Develop a natural areas preservation plan within the SWWD with appropriate partners such as the MNDNR and Washington County.		Work with MNDNR and other agencies to develop policies to preserve priority habitats.	Work with stakeholders, such as the State of Minnesota, non-profits, and Washington County through its Land and Water Legacy Program to fund projects that will protect /preserve land in MNDNR designated corridors and adjacent to scientific and natural areas.	**HIGH**	Natural Resources	5.02 5.03 5.04 5.05

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508	South Washington Watershed District Climate Resiliency Plan	2020				Natural Areas Preservation and Wildlife Corridor Enhancement	Develop a natural areas preservation plan within the SWWD with appropriate partners such as the MNDNR and Washington County.		Work with MNDNR and other agencies to develop policies to preserve priority habitats.	Develop a cost-share grant program for terrestrial invasive species management, such as a buckthorn removal program.	**HIGH**	Invasive Species	3.04
509	South Washington Watershed District Climate Resiliency Plan	2018				Lawn Reduction and Management	Identify areas with extensive, unused lawns, such as large landowners with a sustainability ethic (e.g., corporate headquarters and public institutions).		Work with cities to develop irrigation reduction policies. Work with cities to review and revise ordinances related to vegetation requirements of individual home sites, common space, and other non-impervious surfaces.	Develop alternatives-to-lawn demonstration sites, similar to model home sites.	**HIGH**	Vegetation	5.05
510	South Washington Watershed District Climate Resiliency Plan	2019				Lawn Reduction and Management	Identify areas with extensive, unused lawns, such as large landowners with a sustainability ethic (e.g., corporate headquarters and public institutions).		Work with cities to develop irrigation reduction policies. Work with cities to review and revise ordinances related to vegetation requirements of individual home sites, common space, and other non-impervious surfaces.	Develop incentive programs to encourage developers and individual landowners to reduce lawn to encourage stormwater infiltration.	**HIGH**	Vegetation	3.04
511	South Washington Watershed District Climate Resiliency Plan	2018				Ravine Erosion Control	Analyze natural and stabilized ravines with projected climate change precipitation modeling to assess resilience.		Work with communities to develop a ravine setback policy. Create special drainage zones or overlay districts to establish more protective runoff standards upstream of sensitive ravines.	Conduct an inventory of vulnerable slopes and ravines.	**HIGH**	Water Quality	
512	South Washington Watershed District Climate Resiliency Plan	2019				Ravine Erosion Control	Analyze natural and stabilized ravines with projected climate change precipitation modeling to assess resilience.		Work with communities to develop a ravine setback policy. Create special drainage zones or overlay districts to establish more protective runoff standards upstream of sensitive ravines.	Implement slope and ravine stabilization projects in high priority areas identified in the inventory.	**HIGH**	Water quality	
513	South Washington Watershed District Climate Resiliency Plan	2018				Natural Waterbodies Degradation	Update current plan as needed to respond to new and emerging stressors and pollutants.		Work with communities to implement SWWD's permit requirements and achieve identified water quality goals.	Conduct wetlands and shorelines inventories.	**HIGH**	Water quality	1.04
514	South Washington Watershed District Climate Resiliency Plan	2018				Natural Waterbodies Degradation	Update current plan as needed to respond to new and emerging stressors and pollutants.		Work with communities to implement SWWD's permit requirements and achieve identified water quality goals.	Monitor wetlands, lakes, and streams for destructive water level bounce, pollutant, and temperature stressors.	**HIGH**	Water quality	1.01 1.02
515	South Washington Watershed District Climate Resiliency Plan	2018				Natural Waterbodies Degradation	Update current plan as needed to respond to new and emerging stressors and pollutants.		Work with communities to implement SWWD's permit requirements and achieve identified water quality goals.	Work with communities on street sweeping programs and other water quality best management strategies identified in SWWD's plan.	**HIGH**	Infrastructure	
516	South Washington Watershed District Climate Resiliency Plan	2018				Natural Waterbodies Degradation	Update current plan as needed to respond to new and emerging stressors and pollutants.		Work with communities to implement SWWD's permit requirements and achieve identified water quality goals.	Work with communities to implement chloride-reduction efforts, such as updating snowplows.	**HIGH**	Infrastructure	5.03
517	South Washington Watershed District Climate Resiliency Plan	2018				Urban Forest Enhancement	Identify native tree species and nearby native (Iowa) species suitable for the changing climate.		Work with cities to implement tree preservation ordinances.	Develop a tree planting program using trees suitable for the changing climate.	**HIGH**	Vegetation	5.01
518	South Washington Watershed District Climate Resiliency Plan	2018				Soil Degradation	Work with Natural Resources Conservation Service to determine how to predict, monitor, and minimize potential soil degradation.		Work with communities to develop and implement a model soil ordinances.	Develop demonstration projects to show compacted soil loosening and improvement techniques, and to show the resulting improvement to stormwater infiltration and reduced runoff.	**HIGH**	LID	5.05

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519	South Washington Watershed District Climate Resiliency Plan	2018				Storm Sewer Infrastructure Assessment	Combined Risk (Likelihood of Failure multiplied by Consequences of Failure)		The SWWD share the findings of this failure risk assessment with the owners of the pipes and stakeholders. The SWWD and other pipe owners perform pipe inspection, maintenance, and replacement using the results of this risk analysis along with other available data, prioritizing the pipes with the highest risk. Over the next 5 years, the SWWD and the other pipe owners continue to gather the missing pipe and soils attribute data and populate their GIS databases with gathered information, ultimately incorporating the additional information into this risk analysis.		**HIGH**	Infrastructure	1.04
520	State of Minnesota Climate Action Framework	[Not found]	Many people and groups weighed in. The Climate Change Subcabinet is publishing this framework to advance our conversation with Minnesotans on the work we all must do to reduce greenhouse gas emissions and build resilient communities across our state. The framework is informed by public input received as a part of previous climate work, as well as specific input received throughout the framework development process beginning in 2021. The document was shaped by input from the 11 tribal nations who share Minnesota's geography and the Governor's Advisory Council on Climate Change. Through the winter and spring of 2022, the subcabinet convened workgroups to provide detailed input on each of the framework	Intergovernmental Panel on Climate Change (IPCC). [MNDNR climate compilations were not found but probably were a major contributor.]		Clean transportation:	Connect and serve all people through a safe, equitable, and sustainable transportation system.		Increase funding for non-motorized transportation. Direct resources towards a statewide pedestrian and bicycle network. Increase transit services. Create more reliable and convenient transit networks, prioritize services in communities where transit is essential and residents are disproportionately affected by air pollution. Plan land use and transportation together. Prioritize land use that facilitates multimodal transportation options. Continue exploring opportunities for a clean fuels standard. Incentivize investment and create markets for cleaner fuels, such as advanced biofuels, renewable natural gas, sustainable aviation fuels, and electricity. Expand regional charging. Coordinate with neighboring states, tribes, and other partners to establish a Midwest regional EV charging network. Develop a Minnesota EV plan. Create a strategy to increase EV-charging infrastructure and EV access and availability. Educate communities about the benefits of EVs.		**LOW**	Transportation	

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521	State of Minnesota Climate Action Framework	[Not found]				Climate-smart natural and working lands:	Enhance climate benefits by absorbing and storing carbon, reducing emissions, and sustaining resilient landscapes.		Accelerate forest, grassland and wetland restoration to store more carbon in our landscapes, and avoid conversion to other land uses that reduce carbon storage. Store more carbon. Promote actions that store more carbon on croplands, in yards and open spaces, and on public lands. Restore and expand habitat complexes and corridors. Increase species diversity to promote climate resiliency and adaptation of natural landscapes. Expand climate-resilient agriculture and forestry. Incentivize beneficial practices and assist in implementation, including increased access to technologies, equipment, and seed and plant material. Manage agricultural lands in a way that reduces GHG emissions, particularly potent gases such as methane and nitrous oxide. Increase water storage and infiltration, and manage drainage. Reduce runoff and minimize downstream flooding, erosion, and habitat loss. Prioritize groundwater and drinking water protection in vulnerable areas. Invest in new markets and supply chains for crops and that keep soil covered year-round, and for wood products that increase carbon storage and substitute for more fossil fuel-intensive materials.		**MED**	GHG emission/energy efficiency	5.01
522	State of Minnesota Climate Action Framework	[Not found]				Resilient communities:	Provide each Minnesota community with tools to plan for and become resilient to its unique climate impacts.		Provide more resources for adaptation. Expand funding, staff capacity, technical support, and training for planning and implementation of adaptation and resiliency projects. Increase capacity of the GreenStep Cities program. Share resilience best practices and adaptation resources and expand pilot programs that include tribal nations, schools, counties, and townships. Plant climate-ready trees and preserve mature trees. Climate-ready tree species are well-adapted to challenges such as heat, drought, extreme weather, and pests. Along with mature trees, they decrease energy use in homes and buildings and mitigate heat islands. They should be used to replace diseased trees. Expand green infrastructure and management control flooding, restore lost habitat, and improve water quality. Adopt resilient building policies. Adopt provisions in construction and remodeling codes that prioritize adaptive reuse, and create resilient design standards. Assess vulnerabilities at critical facilities. Use climate projections to predict future hazards and make plans to ensure continuity of operation. Combat heat islands. Provide funding and technical		**HIGH**	LID	2.04 2.05 3.02
523	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Establish a standard to achieve 100% carbon-free electricity and 55% renewable electricity by 2040.		**LOW**	GHG emission/energy efficiency	

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524	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Adapt the grid.		**LOW**	GHG emission/energy efficiency	
525	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Promote electrical grid and transmission upgrades and research and development to enable greater reliability and renewable energy access and integration.		**LOW**	GHG emission/energy efficiency	
526	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Reduce emissions related to heating and cooling homes and businesses.		**LOW**	GHG emission/energy efficiency	
527	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Explore and evaluate new regulatory and policy options such as, but not limited to, a clean thermal standard and incentive programs.		**LOW**	GHG emission/energy efficiency	
528	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Maximize emission reductions through implementation of the Energy Conservation Optimization Act and the Natural Gas Innovation Act.		**LOW**	GHG emission/energy efficiency	
529	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Reduce energy use and waste.		**LOW**	GHG emission/energy efficiency	
530	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Support opportunities for additional incentives, loans, and policies for existing homes, businesses, government, and schools in order to reduce energy use for all Minnesotans as well as to improve health through better air quality.		**LOW**	GHG emission/energy efficiency	
531	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Investigate supply-side supports, or pricing supports, for energy-efficient appliances, heating and air conditioning equipment, and domestic water heaters so that the low-cost-choice is also an energy-efficient choice.		**LOW**	GHG emission/energy efficiency	
532	State of Minnesota Climate Action Framework	[Not found]				Clean energy and efficient buildings:	Expand the use of carbon-free energy and create healthy, comfortable buildings that are cheaper to operate and pollute less.		Improve codes and standard for all new commercial and large multifamily buildings to achieve NetZero by 2036.		**LOW**	GHG emission/energy efficiency	
533	State of Minnesota Climate Action Framework	[Not found]				Healthy lives and communities:	Protect the health and wellbeing of all Minnesotans in the face of climate change.				**MED**	Social Vulnerability	
534	State of Minnesota Climate Action Framework	[Not found]				Clean economy:	Build a thriving carbon-neutral economy that produces goods and services with environmental benefit and equitably provides family-sustaining job opportunities.				**LOW**	GHG emission/energy efficiency	
535	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 1: Consider cultural practices and seek spiritual guidance.	1.1. Consult cultural leaders, key community members, and elders. 1.2. Consider mindful practices of reciprocity. 1.3. Understand the human and landscape history of the community. 1.4. Hold respect for all of our relations, both tangible and intangible. 1.5. Maintain dynamic relationships in a changing landscape.			**HIGH**	Education/Outreach	4.01

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536	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 2: Learn through careful and respectful observation (gikinawaabi)	2.1. Learn from beings and natural communities as they respond to changing conditions over time.			**HIGH**	Education/Outreach	1.01
537	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 3: Support tribal engagement in the environment	3.1. Maintain and revitalize traditional relationships and uses. 3.2. Establish and support language revitalization programs. 3.3. Establish, maintain, and identify existing inventory and monitoring programs. 3.4. Establish and maintain cultural, environmental education, and youth programs. 3.5. Communicate opportunities for use of tribal and public lands. 3.6. Participate in local- and landscape-level management decisions with partner agencies.			**HIGH**	Education/Outreach	5.04
538	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 4: Sustain fundamental ecological and cultural functions	4.1. Maintain or restore hydrology and soils. 4.2. Maintain or restore riparian areas. 4.3. Maintain or restore nibi (water) quality. 4.4. Support specific plants or plant communities with essential requirements. 4.5. Revitalize and maintain Anishinaabe/cultural use of ishkode (fire) as a stewardship tool. 4.6. Maintain and revitalize cultural approaches to harvesting and caretaking.			**HIGH**	Natural Resources	
539	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 5: Reduce the impact of biological and anthropogenic stressors	5.1. Maintain or improve the ability of communities to balance the effects of manidoonsag (little spirits). 5.2. Maintain or improve the ability of communities to balance the effects of bakaan ingoji ga-ondaadag (non-local beings). 5.3. Manage herbivory to promote regeneration of impacted beings. 5.4. Reduce negative impacts from anthropogenic disturbances. 5.5. Monitor and reduce ambient air pollution.			**MED**	Natural Resources	
540	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 6: Reduce the risk and long-term impacts of disturbances	6.1. Alter community structure or composition to reduce risk or severity of major disturbances. 6.2. Promptly revegetate sites after natural disturbance. 6.3. Care for cultural sites after a severe disturbance. 6.4. Plan harvesting, gathering, and collecting opportunities to reduce the risk and impacts of disturbances.			**MED**	Natural Resources	

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						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
541	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 7: Establish, support, and recognize opportunities for beings or sites of concern to the community to withstand climate change.	7.1. Identify, prioritize, and maintain cultural sites and/or culturally sensitive areas. 7.2. Identify, prioritize, and maintain at-risk and/or culturally important beings or communities. 7.3. Establish places for at-risk or displaced beings outside of their normal environments (biological nests/refugia). 7.4. Seek out or share traditional and/or cultural knowledge to inform management of sensitive or at-risk beings or communities. 7.5. Create and/or maintain access routes to traditional gathering and harvesting sites. 7.6. Work across treaty or tribal areas with partners and other tribes to manage at-risk beings.			**MED**	Social Vulnerability	
542	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 8: Maintain and enhance community and structural diversity	8.1. Maintain and restore diversity of native beings. 8.2. Promote diverse generations (both elder and younger beings). 8.3. Retain biological and cultural legacies. 8.4. Establish protected areas to maintain ecosystem and cultural diversity.			**HIGH**	Natural Resources	
543	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 9: Increase ecosystem redundancy and promote connectivity across the landscape	9.1. Manage habitats and access opportunities over a range of sites and conditions. 9.2. Identify additional lands for acquisition to expand the tribal land base, maintain diversity, and improve connectivity. 9.3. Reduce fragmentation to promote continuous natural ecosystems. 9.4. Maintain and create habitat corridors through restoration.			**HIGH**	Parks/Green Space	
544	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 10: Maintain and enhance genetic diversity	10.1. Use seeds and other biological material from relatives of beings from across a greater geographic range. 10.2. Favor local beings whose traits are better adapted to future conditions. 10.3. Collect and preserve seeds from beings that are at-risk or of concern to the community.			**MED**	Vegetation	

Table 2. Summary of Review of Climate Resiliency Planning Documents

Row ID	Entity/Document	Publication Date	Engagement Summary	Climate Trends/ Data Cited	Issues/Impacts/ Resources Evaluated	Goals and Drivers			Actions/Activities		Relevance to CRWD (High, Med, Low)	General Category (for sorting)	Aligned with CRWD CRF Activities:
						Guiding Principles	Goals/Strategies	Objectives	Actions (Led)	Actions (Supported)			
545	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 11: Encourage community adjustments and transition while maintaining reciprocity and balance	11.1. Favor or restore native beings that are expected to do well under future conditions and that can help meet future needs. 11.2. Establish or encourage new mixes of local beings and/or bakaan ingoji ga-ondaadag (non-local beings) expected to do well under future conditions to meet future needs. 11.3. Guide changes in composition of beings at early stages of development. 11.4. Seek out and share traditional and cultural knowledge of potential new beings from tribal communities where these beings are native			**MED**	Vegetation	
546	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 12: Support a new ecosystem balance after a major disturbance	12.1. Promptly prepare and revegetate sites after disturbance. 12.2. Allow for areas of natural regeneration to observe which beings naturally appear on the site. 12.3. Adapt significantly disrupted ecosystems to meet expected future conditions and needs. 12.4. Relocate ecosystems, beings, or cultural sites.			**MED**	Vegetation	
547	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 13: Design and modify infrastructure and access to match future conditions and community needs	13.1. Reinforce infrastructure to meet expected conditions. 13.2. Incorporate natural or low impact development into designs. 13.3. Reroute, relocate, or remove infrastructure to increase access efficiency and minimize harmful impacts.			**HIGH**	LID	
548	Tribal Climate Adaptation Menu (GLIFWC)	2019	Ojibwe and Menominee tribal members worked on this project				Strategy 14: Accommodate altered hydrologic processes	14.1. Plan for decreased streamflow and limited water availability. 14.2. Enhance the ability of ecosystems to retain water. 14.3. Adjust systems to cope with increased water availability and high water levels. 14.4. Respond to or prepare for excessive overland flows (surface runoff). 14.5. Adjust the location and size of forested areas to new or changing water levels.			**HIGH**	Flooding	

Appendix C

Workshop and Public Engagement Results

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Monitoring, Research and Assessment	inspections will be more intense with higher flows on construction sites	Issue	Inspections	
Monitoring, Research and Assessment	more equipment replacement and maintenance with higher flows	Issue	Maintenance	
Monitoring, Research and Assessment	heat concerns for staff working in the field	Issue	Health	
Monitoring, Research and Assessment	how to best process/present CRWD data to be of best use to people to understand climate change; how are we turning around the data	Issue	Data	
Monitoring, Research and Assessment	fast/efficient meaningful processing of data; put it to good community use	Action	Data	
Monitoring, Research and Assessment	We have lots of data; how can we use it optimally	Issue	Data	
Monitoring, Research and Assessment	assess info collected by others; are we getting what we need? Are we sharing enough?	Both	Data	
Monitoring, Research and Assessment	Como and McCarrons; are there aquatic bio changes that will happen? What should we expect from warmer waters?	Issue	Aquatic ecosystems	
Monitoring, Research and Assessment	Monitor BMPs >> assess performance >> influence design	Action	Adaptive management	Monitoring
Monitoring, Research and Assessment	how do we change our monitoring protocols in the lens of climate change? Stations? BMPs?	Issue	Adaptive management	Monitoring
Monitoring, Research and Assessment	how does the longer growing season affect CRWD projects?	Issue	Seasonal impacts	
Monitoring, Research and Assessment	Ex: Seminary Pond designed for 10-year event; how is it doing? What are the climate impacts to our projects?	Issue	BMP performance	
Monitoring, Research and Assessment	More monitoring of CRWD infrastructure; how is it doing under extreme events	Both	Monitoring	
Monitoring, Research and Assessment	Research: look for areas to partner with others to better understand climate change effects and further engage	Action	Partnerships	
Monitoring, Research and Assessment	Pollutant tracing; where are the hot spots?	Issue	Studies	
Monitoring, Research and Assessment	Where is all the chloride coming from?	Issue	Studies	Chlorides
Monitoring, Research and Assessment	Research on impacts to infrastructure	Action	Studies	BMP performance
Monitoring, Research and Assessment	Research: alternatives to deicers; freeze thaw concerns and what to do?	Both	Studies	Chlorides

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Monitoring, Research and Assessment	May need to expand chloride monitoring	Action	Monitoring	Chlorides
Monitoring, Research and Assessment	Maintenance of a long-term record is important	Action	Data	Monitoring
Monitoring, Research and Assessment	Stormwater data collection quantity and quality; good way to assess change	Action	Data	Monitoring
Monitoring, Research and Assessment	More staff needed for storm flow sampling	Both	Staff capacity	Monitoring
Monitoring, Research and Assessment	Evaluation of trends that can inform actions	Action	Data	Adaptive management
Monitoring, Research and Assessment	More monitoring of the river?	Action	Monitoring	
Monitoring, Research and Assessment	Year to year evaluation; is this still useful to collect? What do we need now?	Both	Monitoring	Adaptive management
Monitoring, Research and Assessment	Stories that ground trends; shape them into meaningful conversation points with people across the District	Action	Data	Engagement
Monitoring, Research and Assessment	Adjustments will be needed; different areas will need to be monitored depending on conditions	Issue	Adaptive management	Monitoring
Monitoring, Research and Assessment	Baseline data is important	Issue	Data	
Monitoring, Research and Assessment	year round monitoring?	Action	Monitoring	Seasonal impacts
Monitoring, Research and Assessment	wetland floristic assessments, macroinvertebrate monitoring; do we need more biological monitoring?	Both	Aquatic ecosystems	Monitoring
Monitoring, Research and Assessment	Contaminants of emerging concern	Issue	Monitoring	
Monitoring, Research and Assessment	Impacts if pumps fail?	Issue	BMP performance	
Monitoring, Research and Assessment	Fisheries, are we doing enough	Issue	Aquatic ecosystems	
Monitoring, Research and Assessment	Information to support recreation; are we doing enough?	Both	Recreation	Monitoring
Monitoring, Research and Assessment	Areas that have historically not had a lot of project focus could be important to provide assessment or projects	Issue	Adaptive management	Studies
Monitoring, Research and Assessment	Como Lake plant work changing over time; will need to evolve	Both	Aquatic ecosystems	Adaptive management

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Monitoring, Research and Assessment	Resource management >> Lakes, wetland plans should have a climate change section	Action	Aquatic ecosystems	Adaptive management
Monitoring, Research and Assessment	AIS - how does the climate affect our living systems over time and what should we do?	Issue	Aquatic ecosystems	
Monitoring, Research and Assessment	Macrophyte management trends	Both	Aquatic ecosystems	Adaptive management
Monitoring, Research and Assessment	How is curlyleaf treatment impacted?	Issue	Aquatic ecosystems	Adaptive management
Monitoring, Research and Assessment	AIS	Issue	Aquatic ecosystems	
Monitoring, Research and Assessment	Gross solids, more in future?	Issue	Maintenance	
Monitoring, Research and Assessment	Increased algal blooms	Issue	Aquatic ecosystems	
Monitoring, Research and Assessment	How to measure climate progress and resiliency	Both	Self assessment	
Monitoring, Research and Assessment	Increased runoff of fertilizers, pesticides, sediment	Issue	Water quality	
Communications and Engagement	"General" climate change impacts may not resonate with audiences	Issue	Engagement	
Communications and Engagement	Are people connecting personal experience to climate change?	Issue	Engagement	
Communications and Engagement	Climate change is an "accessible" topic to public. ID the link between climate, resilience, and CRWD work	Action	Engagement	
Communications and Engagement	Help people make connections between what they are experiencing and CRWD actions or engagement opportunities	Action	Engagement	
Communications and Engagement	People are familiar with climate change; can leverage that interest to get attention to potential audiences	Action	Engagement	
Communications and Engagement	Highlight climate resilient features of all projects - CRWD could be more direct in the link to climate resilience	Action	Engagement	
Communications and Engagement	Link climate resilience news to CRWD projects via C+E ("Could [news event] happen to me?")	Action	Engagement	
Communications and Engagement	Focus C+E effort on impacts community cares about; connect communities to the issues	Action	Engagement	
Communications and Engagement	District as a vehicle to share/distribute info (info may be generated by others)	Action	Communication	Data

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Communications and Engagement	Communicate changes in precipitation	Action	Communication	Data
Communications and Engagement	Communicate AIS concerns (terrestrial and aquatic?)	Action	Communication	Aquatic ecosystems
Communications and Engagement	Water quality impacts resulting from climate change as a C+E focus	Both	Engagement	Water quality
Communications and Engagement	Safety related impacts are key to C+E	Both	Engagement	Health
Communications and Engagement	Communicate harmful algal blooms (role of WD vs City vs County?)	Action	Communication	Aquatic ecosystems
Communications and Engagement	Communication of flood prone areas (role of WD vs City vs. County?)	Action	Communication	Health
Communications and Engagement	Action oriented communications through Art; limiting the climate story doom and gloom	Action	Engagement	
Communications and Engagement	CRWD Program Review to consider priority and roles relative to resilience	Action	Self assessment	
Communications and Engagement	Heat/air quality/extreme weather impacts to volunteer events (like Urban Roots work days)	Issue	Health	
Communications and Engagement	Using public art to connect with communities about climate resiliency	Action	Engagement	
Communications and Engagement	Adopt a drain communications - expand to resiliency	Action	Engagement	
Communications and Engagement	What can we learn about our communities from organizations like community councils relative to climate resiliency; community feedback	Both	Partnerships	Engagement
Communications and Engagement	Can we connect community council audiences to CRWD resources	Action	Partnerships	Engagement
Communications and Engagement	Resilience from other perspectives - indigenous knowledge ("Two eyed seeing" - Sankofa)	Action	Engagement	
Communications and Engagement	More intentional dialogue to understand community interests and needs	Action	Engagement	
Communications and Engagement	Additional engagement for Rule changes driven by resiliency	Action	Engagement	Rule updates
Communications and Engagement	CRWD can partner to generate more complete message around causes and impacts	Action	Partnerships	
Communications and Engagement	Opportunity to identify local actions people can take to adapt that don't seem overwhelming	Action	Engagement	

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Communications and Engagement	Partners can help with GHG reductions and we can talk resiliency (complete message)	Action	Partnerships	
Communications and Engagement	Role of MN Water Stewards relative to climate resilience?	Action	Engagement	
Communications and Engagement	HISTORY-telling; people centered highlighting people groups	Action	Engagement	
Communications and Engagement	Where is climate resiliency among the priorities of messaging? How to introduce technical topics?	Issue	Self assessment	Communication
Communications and Engagement	Establishing youth engagement values - empowerment, action, revitalization, resiliency, leadership	Action	Engagement	
Communications and Engagement	Partnerships with climate focused organizations - slightly different audience than water, potentially: MCAP, Nature Conservancy, Green Step Program, GRG, Climate Generation	Action	Partnerships	
Communications and Engagement	Coordination with partners to ensure consistent messaging	Action	Partnerships	Communication
Communications and Engagement	Embed youth-centered climate resiliency messaging into youth engagement work	Action	Engagement	
Communications and Engagement	C+E has the most "space" for climate resilience discussion	Both	Engagement	
Communications and Engagement	In C+E process, identify if there is a climate resilience message/aspect of all C+E efforts	Action	Engagement	
Communications and Engagement	Recognize that there are community climate impacts of higher priority than stormwater (e.g., food, energy); support partner efforts to address basic needs, where relevant	Action	Engagement	Health
Communications and Engagement	H&H modeling - how does resiliency affect our target audiences and focus areas	Issue	Studies	Engagement
Communications and Engagement	Reimagine TACs to include indigenous knowledge, pilot with climate resiliency; be mindful of how we support and value their time	Action	Partnerships	
Communications and Engagement	CRWD participation in events focused on climate resilience (already doing)	Action	Engagement	
Communications and Engagement	Support developers advertising the benefits of projects relative to climate resilience	Action	Dev./city support	
Communications and Engagement	Tours of the building for developers and builders; Role for CRWD to support cities in similar efforts	Action	Dev./city support	
Communications and Engagement	Consider climate resiliency in community grants	Action	Grants	
Admin, Operations, Other	Make sure to define goals soon	Action	Self assessment	
Admin, Operations, Other	Already doing, do more: EV charging, water reuse, solar, turf conversion	Action	Conservation BMPs	

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Admin, Operations, Other	Equity considerations; populations across the district are affected differently/disproportionately	Issue	Equity	
Admin, Operations, Other	Staff safety protocols considering climate change and/or climate emergencies	Both	Health	
Admin, Operations, Other	Bike rack?	Action	Conservation BMPs	
Admin, Operations, Other	Shop local for everything when possible	Action	Conservation BMPs	
Admin, Operations, Other	Review WOS(?) policy with GHG reduction in mind	Action	Conservation BMPs	
Admin, Operations, Other	Can we reduce vehicle expenses with more Evs and solar panels	Action	Conservation BMPs	
Admin, Operations, Other	Tie in climate plan update to next round of Watershed Management Plan development	Action	Self assessment	
Admin, Operations, Other	Iteration needs to be part of the plan	Action	Adaptive management	
Admin, Operations, Other	Consider more innovative/pilot practices/projects in the face of climate change - e.g., smart systems, new AIS treatments, proprietary tech, MTDs, etc	Action	Adaptive management	
Admin, Operations, Other	Quantify and share the impact of CRWD office practices ($ savings, resource savings), ARC score?	Action	Conservation BMPs	
Admin, Operations, Other	Are there other operational things CRWD can do to reduce impacts	Both	Conservation BMPs	
Admin, Operations, Other	Communicate how developers or residents can replicate CRWD actions	Action	Conservation BMPs	Dev./city support
Admin, Operations, Other	Climate action working group (Ramsey Co?)	Action	Partnerships	
Admin, Operations, Other	How do we budget for climate resiliency within programs and as an organization	Issue	Self assessment	
Admin, Operations, Other	Where does climate resilience fit as a priority for CRWD (critical, important, or beneficial) - individual actions may vary	Issue	Self assessment	
Admin, Operations, Other	Increase engagement with state associations of planners, city engineers, etc; reduce impervious areas requiring salting	Action	Partnerships	Dev./city support
Regulatory	Assess all regulations for effectiveness in climate change	Action	Rule updates	
Regulatory	IDDE considerations - changes to frequency of management needs in this area	Issue	Inspections	Monitoring
Regulatory	Inspections - more sediment control needed under higher precipitation	Both	Inspections	BMP performance
Regulatory	Increased inspections affecting how much work can get done: staff, equipment impacts	Both	Inspections	Staff capacity
Regulatory	Increased precipitation and intensity puts more stress on infrastructure; need enhanced post-construction support for permittees	Both	BMP performance	Dev./city support
Regulatory	Rate control may be more important than volume control - other attributes to consider?	Issue	Rule updates	
Regulatory	Do regulations focus on the [parameters] sensitive to climate change	Issue	Rule updates	
Regulatory	Revisit regulations down the road (5 years?)	Action	Rule updates	

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Regulatory	AIS - not directly involved in regulatory	Issue	Rule updates	Aquatic ecosystems
Regulatory	River flooding this year (from rain) had unusual timing; affects maintenance and floodplain (e.g., sediment piles in river)	Issue	Maintenance	Floodplain
Regulatory	Promote regional projects, leverage impact fund, shift responsibility to larger more capable…	Action	Regional projects	
Regulatory	Sequencing changes - CRWD builds projects, gets reimbursed over time; take charge of building regional projects…	Action	Regional projects	
Regulatory	Make it easier to do more regional projects; move away from parcel by parcel	Action	Regional projects	
Regulatory	CRWD to identify opportunities; impact fund at about $500k currently and haven't spent it; pilot projects with this fund for demonstration	Action	BMP performance	Demonstration projects
Regulatory	More rain means more control needed on sites	Issue	BMP performance	Inspection
Regulatory	Challenges resulting from a longer construction season	Issue	Seasonal impacts	BMP performance
Regulatory	Impacts to plant management; degradation to natural areas during drought	Issue	Plants/trees	
Regulatory	Climate change impacts to maintenance; increased effort to confirm [maintenance] is being done	Issue	Maintenance	
Regulatory	Sites <1 acres will start to matter more; time to regulate smaller sites?	Both	Rule updates	
Regulatory	PPG example - use trained volunteers to inspect smaller sites, checking to make sure it is being done well	Action	Staff capacity	Inspection
Regulatory	Partnering - city, county - coordinating inspections and permitting to optimize and reduce overlap	Action	Partnerships	Inspection
Regulatory	Performance of construction BMPs during traditionally winter months	Issue	Seasonal impacts	BMP performance
Regulatory	Difficulty establishing vegetation during drought; need for irrigation, changes in specifications	Both	Plants/trees	Rule updates
Regulatory	WCA implications - interest in wetland expansion and restoration	Both	wetlands	
Regulatory	Really limited opportunities for wetlands; shift rules to focus on wetland expansions and restoration	Both	wetlands	Rule updates
Regulatory	Change redevelopment requirements to include considerations for chloride reduction	Action	Rule updates	Chlorides
Regulatory	Chloride regulation, what does it look like?	Issue	Rule updates	Chlorides
Regulatory	Chloride management considerations outside of the construction season	Issue	Rule updates	Chlorides
Regulatory	Be proactive re: increased precipitation; are rate control and volume control enough? Is Atlas 15 good enough?	Both	Rule updates	
Regulatory	WQ modeling…we assume that if we meet 1.1" we are good. Is that enough?	Issue	Rule updates	Studies
Regulatory	Shift to Atlas 15	Action	Rule updates	
Regulatory	Adjusting rules based on observed and anticipated climate changes	Action	Rule updates	Adaptive management
Regulatory	Rate control requirements/flood mitigation will have to keep pace with increased precip (Atlas 15)	Both	Rule updates	Adaptive management
Regulatory	Establish a regulatory framework that can be flexed to accommodate future contaminants	Action	Rule updates	Adaptive management

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Regulatory	Increase the cost cap more frequently; we'll see reduced treatment and flood protection per site this year, for example	Action	Rule updates	
Regulatory	Staff infrastructure is limited...tough to increase regulatory activities with present resources	Issue	Staff capacity	Rule updates
Regulatory	Staffing - many more rain events affect staff and equipment availability	Issue	Staff capacity	
Regulatory	Challenge of rules based on fixed or determined events vs. changing climate. Need to be "known" for developers to plan/design	Issue	Adaptive management	
Regulatory	Enforcement and design for future climate; designing for year zero versus year 25 or 50.	Both	BMP performance	Inspection
Regulatory	Identify the consequences of uncertainty in regulatory analysis	Action	Studies	Adaptive management
Projects, Programs, and Infrastructure Management	Increased demand for green infrastructure: emphasis on maintenance requirements	Issue	Maintenance	
Projects, Programs, and Infrastructure Management	More demand for partnerships/grants?	Issue	Partnerships	Grants
Projects, Programs, and Infrastructure Management	Regional stormwater systems vs. parcel by parcel	Action	Regional projects	
Projects, Programs, and Infrastructure Management	Modeling to understand function and capacity (currently doing this and should expand to BMP modeling)	Action	Studies	BMP performance
Projects, Programs, and Infrastructure Management	Water storage and reuse to help combat extremes; smart systems	Action	BMP performance	Adaptive management
Projects, Programs, and Infrastructure Management	Does CRWD take more of a lead on more complex but important projects like reuse	Action	Conservation BMPs	Demonstration projects
Projects, Programs, and Infrastructure Management	Should we be more proactive about end use (big water users)?	Action	Conservation BMPs	Rule updates
Projects, Programs, and Infrastructure Management	Chloride management grants; grants for projects that reduce chloride (like heated parking lot)	Action	Chlorides	Grants
Projects, Programs, and Infrastructure Management	Localized flooding at residential sites (currently not grant funded; change that?)	Both	Floodplain	Grants
Projects, Programs, and Infrastructure Management	Water quality versus water quantity and grant funding; cost for measurable flood mitigation projects	Issue	Floodplain	Grants
Projects, Programs, and Infrastructure Management	Flood mitigation strategy is needed	Action	Floodplain	Self assessment
Projects, Programs, and Infrastructure Management	Native landscapes; shift to district-wide	Action	Plants/trees	
Projects, Programs, and Infrastructure Management	Emphasize ecosystem restoration to more infiltration and other ecosystem services/habitat	Action	Plants/trees	

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Projects, Programs, and Infrastructure Management	Converting impervious by reducing road size, partnering with land conservation orgs, supporting community gardens	Action	Partnerships	Plants/trees
Projects, Programs, and Infrastructure Management	Evaluate in stream hydroelectric turbines in TBI	Action	Conservation BMPs	
Projects, Programs, and Infrastructure Management	More erosive rainfalls and impact on pretreatment	Issue	BMP performance	Maintenance
Projects, Programs, and Infrastructure Management	Storage and conveyance	Both	BMP performance	
Projects, Programs, and Infrastructure Management	Increase emphasis on more street sweeping	Action	BMP performance	
Projects, Programs, and Infrastructure Management	Support for city tree efforts; more sweeping in areas with more trees	Action	Plants/trees	Dev./city support
Projects, Programs, and Infrastructure Management	BWSR action plan for 1M more trees; WDs and SWCDs will be critical in this effort	Action	Plants/trees	
Projects, Programs, and Infrastructure Management	Urban tree canopy and source of pollutant loading	Issue	Plants/trees	Water quality
Projects, Programs, and Infrastructure Management	Is 1.1" still capturing what we need; does this need to be changed	Issue	BMP performance	Studies
Projects, Programs, and Infrastructure Management	BMP sizing recalibration (is 1.1" still getting 90% of rain) >> more expensive	Issue	BMP performance	Studies
Projects, Programs, and Infrastructure Management	Emphasize easier simplified maintenance for grants and CRWD projects (expect more maintenance in the future)	Action	Maintenance	Grants
Projects, Programs, and Infrastructure Management	Reporting system for flooding between cities/WDs/others	Action	Floodplain	Dev./city support
Projects, Programs, and Infrastructure Management	How long do we expect things to function? Previous assumptions may not be relevant	Issue	Maintenance	BMP performance
Projects, Programs, and Infrastructure Management	Should trees be included standard in CRWD plans?	Action	Plants/trees	
Projects, Programs, and Infrastructure Management	BMP performance - is this changing with changing precipitation patterns?	Issue	BMP performance	
Projects, Programs, and Infrastructure Management	Consider planting plans for surface BMPs - more or less species diversity; trees vs grasses	Action	Plants/trees	
Projects, Programs, and Infrastructure Management	Will floodplain projects become more prevalent or higher priority in our work	Both	Self assessment	Floodplain
Projects, Programs, and Infrastructure Management	Continue identifying opportunities to upscale and adapt infrastructure as it goes in versus standalone projects	Action	BMP performance	Adaptive management

Tabulation of Results from July 29 CRWD Staff Workshop

Sheet/Category from July 29 Staff Workshop	Comment	Issue, Action, or Both	Theme 1	Theme 2
Projects, Programs, and Infrastructure Management	We own a lot of infrastructure. Ensuring integrity of CRWD-owned infrastructure	Issue	Maintenance	
Projects, Programs, and Infrastructure Management	Protecting previous investments - need to make sure they can last	Issue	Maintenance	
Projects, Programs, and Infrastructure Management	Existing infrastructure - how to retrofit and support vs. full replacement	Issue	Maintenance	BMP performance

Summary of Results from August 14, 2024 CAC Workshop re: Climate Resiliency Framework

Theme	Comment	Issue or Action	Keyword 1	Keyword 2
Address today's impacts	increased salt use, leading to more saline water for wildlife and irrigation (food security issues)	Issue	Chlorides	Health
Address today's impacts	impacts to soil health (and food security)	Issue	Health	Conservation BMPs
Address today's impacts	Soil health impacts on runoff	Issue	Conservation BMPs	Floodplain
Address today's impacts	Increased erosion and erosion control needs	Issue	Water quality	Rule updates
Address today's impacts	Overflows and adaptive management needed for BMPs (allow greater flows to bypass(	Action	BMP performance	Adaptive Management
Address today's impacts	BMP performance is impacted by greater storms	Issue	BMP performance	Water quality
Address today's impacts	Varied impacts to different watersheds and communities (human and ecological)	Issue	Equity	Health
Design for the future	Continued maintenance needs and additional future maintenance	Action	BMP performance	Maintenance
Design for the future	Encourage more sustainable and native lawns (need a cultural shift); do lawns even make sense anymore	Action	Engagement	Conservation BMPs
Design for the future	Talk to contractors about more sustainable lawns	Action	Dev./City Support	Conservation BMPs
Design for the future	Allow combined sewer overflows if needed under increased precip events	Action	Floodplain	Water quality
Design for the future	Designing for the future is going to be very expensive; role of a govt. entity is to determine how to fund it	Issue	Partnerships	Staff capacity
Design for the future	Does every house need a sump pump?	Action	Floodplain	Engagement
Increase our understanding	Jumpstart a climate change curriculum in schools	Action	Engagement	
Increase our understanding	Could partner on grant programs to include climate change factors (in scoring and/or design?)	Action	Grants	Engagement
Increase our understanding	Addressing climate change deniers	Action	Engagement	
Increase our understanding	Tie observed impacts to climate change and CRWD work (parallels between news and CRWD impacts)	Action	Engagement	

Summary of Results from August 14, 2024 CAC Workshop re: Climate Resiliency Framework

Theme	Comment	Issue or Action	Keyword 1	Keyword 2
Increase our understanding	Connect financial impacts to climate change and connect personal behaviors (example: life cycle cost comparison of regional systems versus parcel-by-parcel systems	Action	Engagement	Studies
Increase our understanding	Focus on small businesses and non-single family residential	Action	Engagement	Rule updates
Increase our understanding	It is hard to communicate issues when infrastructure is hidden (how do we show people)?	Issue	Engagement	BMP performance
Provide support/ foster partnerships/ align goals	How do multiple entities' plans fit together	Issue	Partnerships	
Provide support/ foster partnerships/ align goals	Focus existing programs on climate change (or develop new programs)	Action	Grants	Engagement
Provide support/ foster partnerships/ align goals	Options for "green lending" (e.g., McKnight Foundation); connect people with green lending programs	Action	Grants	Engagement

Summary of Results from September 4, 2024 Manager Workshop re: Climate Resiliency Framework

Theme	Comment	Issue or Action	Keyword 1	Keyword 2
Address today's impacts	Increased damage to property is a high priority; recovery costs, insurance costs	Issue	Health	Floodplain
Design for the future	Should CRWD develop large scale neighborhood resilience projects (e.g., larger RWG)? Raymond Ave. as en example; look at public land or partnerships	Action	Regional Projects	Partnerships
Address today's impacts	People in CRWD focus areas [from Plan] may have fewer resources to address resilience or recovery; CRWD should proactively focus on those areas	Action	Equity	
Address today's impacts	Impacts to bridges; contraction/expansion of joints?	Issue	Maintenance	BMP Peformance
Design for the future	Need to understand temperature/climate impacts to CRWD infrastructure (assess vulnerability as a Plan action)	Issue	Maintenance	BMP Peformance
Increase our understanding	U of MN resilience training is available for staff; contact Joel Larson at Water Resource Center	Action	Staff capacity	Partnerships
Design for the future	Are we sizing stormsewer correctly; should we go one step further?	Issue	BMP Peformance	Floodplain
Address today's impacts	Some residents may not be able to afford insurance; when damage occurs, who is responsible?	Issue	Health	Floodplain
Increase our understanding	How is salt use related to warming trends? More/less use?	Issue	Chlorides	
Design for the future	Look at design process to limit salt use; can existing sites be retrofitted to require less salt use?	Action	Chlorides	
Increase our understanding	Trees impacted by drought and climate; provide education to residents on how to care for stressed trees	Action	Plants/trees	Communication
Design for the future	How to plan vegetation that can handle extremes	Issue	Plants/trees	BMP Peformance
Increase our understanding	Unseen impacts are important and less visible (TBI); there is disconnect between important work and impacts	Action	Communication	BMP Peformance
Increase our understanding	Algal blooms and other highly visual impacts are better understood	Issue	Communication	
Design for the future	More focus on CRWD-led flood control projects	Action	Floodplain	Projects

Summary of Results from September 4, 2024 Manager Workshop re: Climate Resiliency Framework

Theme	Comment	Issue or Action	Keyword 1	Keyword 2
Provide support/ foster partnerships/ align goals	Coordination with City parks and public works departments to develop shared goals and roles; emphsize where land is available; TAC may be an opportunity for that	Action	Regional Projects	Dev./city support
Increase our understanding	How wil climate change impact RWG vegetation, performance, maintenance	Issue	Plants/trees	Maintenance
Increase our understanding	Heat island is becoming a significant issue in public developments; concrete reduces maintenance with consequences; what are pros/cons?	Issue	Health	Studies
Increase our understanding	Are there relevant maintenance practices from wamer climates we can use?	Action	Maintenance	
Provide support/ foster partnerships/ align goals	Use water stewards as a resource	Action	Engagement	
Increase our understanding	Demonstration , pilot, or experimental projects to try different strategies (also serves as engagement opportunities)	Action	Demonstration Projects	Engagement
Provide support/ foster partnerships/ align goals	Partner with the state and use capital grounds for projects	Action	Regional Projects	Partnerships
Increase our understanding	Check with the U of MN regarding comparitive studies and pilot projects	Action	Partnerships	Studies
Design for the future	Some native plants are doing well; leverage those species	Action	Plants/trees	
Design for the future	Utilize smart controls and adaptive management into project operations	Action	Adaptive Management	BMP Peformance
Increase our understanding	Water reuse during drought cycles	Issue	Conservation BMPs	Maintenance
Increase our understanding	Are smaller, diffuse solutions possible to use stormwater as a resource	Issue	Conservation BMPs	
Provide support/ foster partnerships/ align goals	Consider U of MN participation in the TAC	Action	Partnerships	

Summary of Results from October 22, 2024 TAC Workshop re: Climate Resiliency Framework

Goal Group	Comment	Issue or Action
Regulatory/ Projects	Hard to justify costs beyond what's required	Issue
Regulatory/ Projects	NRI's help prioritize natural resource projects	Both
Regulatory/ Projects	Look to other countries/states that deal with the climate we are changing to	Action
Regulatory/ Projects	Consider coordinating with cities to encourage stormwater utility fee to increase revenue for resiliency projects	Action
Regulatory/ Projects	Find incentives in regulatory program cor creating flood mitigation (storage beyond 1.1")	Action
Regulatory/ Projects	CRWD-lead modeling projects are very helpful for project planning	Both
Regulatory/ Projects	CRWD raingarded cost share/RFP program	Action
Regulatory/ Projects	Dual purpose areas that can flood when needed for extreme events	Action
Regulatory/ Projects	Increase wetland areas/banking opportunities	Action
Regulatory/ Projects	Find ways to utilize wetland areas	Action
Regulatory/ Projects	Native boulevard planting grants for certain areas - consider opening the program to all areas	Action
Regulatory/ Projects	Overbuild surface features for snow stroage or go below ground for year round infiltration	Action
Regulatory/ Projects	Investing in resiliency efforts now will be cheaper	Issue
Regulatory/ Projects	Maximize capture and retention when space is availabile (25 year event? Atlas 15?)	Action
Regulatory/ Projects	CRWD should provide more support for partners on flood planning and approaches	Action
Regulatory/ Projects	Freeze/thaw cycles increasing, damage to infrastructure	Issue
Regulatory/ Projects	How to reduce chloride use and water inpacts and damage to infrastructure	Issue
Regulatory/ Projects	Use available data (e.g., heat map) when planning projects; think beyond what is in immediate control; partnerships	Action

Summary of Results from October 22, 2024 TAC Workshop re: Climate Resiliency Framework

Goal Group	Comment	Issue or Action
Regulatory/ Projects	Rainfall driven river flooding	Issue
Regulatory/ Projects	"Cloudburst" design principles for stormwater (NYC)	Action
Education/ Outreach/ Partnerships	Collaborating on engagement with other plan development	Action
Education/ Outreach/ Partnerships	[Create?] "Risk factor" inundation mapping (NWS)	Action
Education/ Outreach/ Partnerships	Curtiss field - future proofing flooding, tie back to general resilience	Action
Education/ Outreach/ Partnerships	Localized tools for climate trends	Action
Education/ Outreach/ Partnerships	Hard to reach communities; focus areas; change approaches for specific communities	Action
Education/ Outreach/ Partnerships	MPCA local climate action grants	Action
Education/ Outreach/ Partnerships	Publics schools and community groups	Action
Education/ Outreach/ Partnerships	Different types of events (e.g., farmers markets)	Action
Education/ Outreach/ Partnerships	Resident "How to's" for planting success, especially in an urban environment	Action
Education/ Outreach/ Partnerships	Tree trust partnership - smaller trees on private property?	Action
Education/ Outreach/ Partnerships	Tree planting popularity; feasibility/location siting, site prep, maintenance? Private property? Shrubs too?	Action
Education/ Outreach/ Partnerships	Artist in residence, signage, images vs. words	Action
Education/ Outreach/ Partnerships	Partnering on implementation - access across all socioeconomic groups (Wheelock ?)	Action

Summary of Results from October 22, 2024 TAC Workshop re: Climate Resiliency Framework

Goal Group	Comment	Issue or Action
Education/ Outreach/ Partnerships	Access to community education; inconsistent messagingl "DIY" for projects	Both
Education/ Outreach/ Partnerships	Info sessions: public schools, FMR, Adopt-a-drain; connect to existing programs	Action
Education/ Outreach/ Partnerships	ID Gaps in WD - who in non-profit community side could CRWD partner with - Frogtown Green example	Action
Education/ Outreach/ Partnerships	Tie sustainability into "MN Pride" feeling	Action
Education/ Outreach/ Partnerships	Staff capacity for grant applications - passthrough to applicants?	Issue
Education/ Outreach/ Partnerships	Systems thinking - how does this affect other projects/ watersheds	Action
Monitoring/ Research	Expand research goal(s) beyond only CRWD infrastructure	Action
Monitoring/ Research	Leverage info and experience from St Paul Parks and Rec	Action
Monitoring/ Research	Maintain shared database of infrastructure; CRWD as holder of regional data; would make it easier to evaluate opportunities	Action
Monitoring/ Research	Collaboration is the only way to tackle climate impacts; sustained teams are needed	Both
Monitoring/ Research	Share models and data on BMP performance	Action
Monitoring/ Research	Develop water quality modeling that incorporates future trends and extreme events	Action
Monitoring/ Research	Alignment of methods (e.g., modeling, monitoring) will aid collaboration effectiveness	Both
Monitoring/ Research	CRWD should lead large-scale modeling using city data; coordinate to limit duplication of modeling efforts	Action
Monitoring/ Research	Look at Rice Creek WD climate resilience framework	Action
Monitoring/ Research	Use of state/U of MN/NOAA data lends credibility	Issue
Monitoring/ Research	Need to evaluate what is the goal when replacing BMPs - what conditions are we designing for?	Both

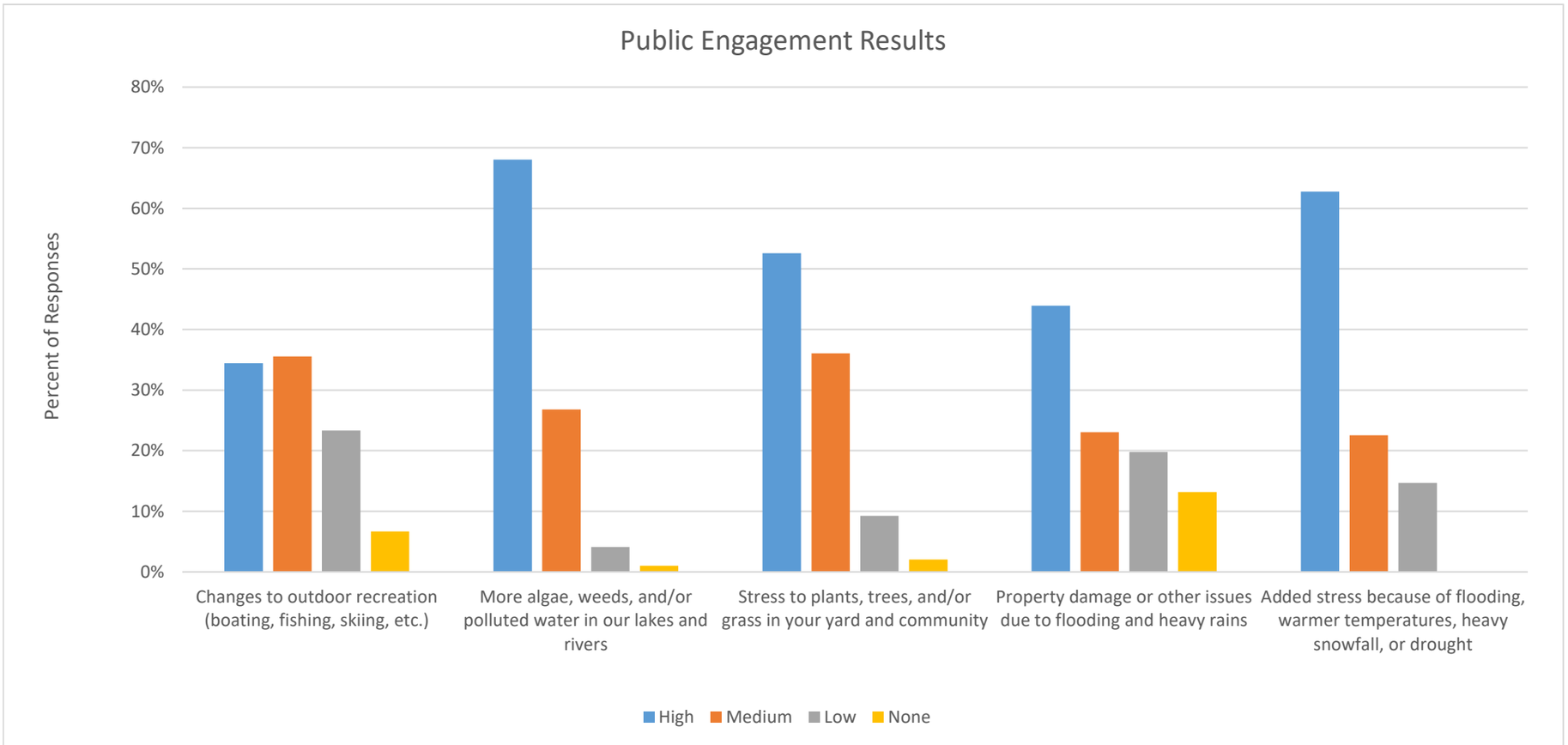
Summary of Results from October 22, 2024 TAC Workshop re: Climate Resiliency Framework

Goal Group	Comment	Issue or Action
Monitoring/ Research	Promote environmental justice/equity lens when prioritizing work	Action
Monitoring/ Research	Can modeling/research focus on vulnerable populations?	Action
Monitoring/ Research	Although resources present in all areas, "quality" of those resources varies (e.g., lack of biodiversity)	Issue
Monitoring/ Research	Early engagement with citis and developers to incorporate resilience (when? What is the trigger?)	Action
Monitoring/ Research	ID senstitive areas in relation to redevelopment opportiunities	Action
Monitoring/ Research	More flow leads to more I+I and more sinkholes	Issue
Monitoring/ Research	CRWD support city staff within illicit discharge detection	Action
Monitoring/ Research	CRWD lead on pursuing grants for collaborative projects	Action
Monitoring/ Research	Keep being progressive with research and innovative approaches - easier for cities to pursue after WD leads the way	Action
Monitoring/ Research	Can CRWD lead projects (admin) and bill the cities?	Action

Public Engagement Results

Tell us which of the following impacts you've experienced and how much by placing a sticker in the high, medium, low, or none column next to it.

Impact	High	Medium	Low	None	Total
Changes to outdoor recreation (boating, fishing, skiing, etc.)	31	32	21	6	90
More algae, weeds, and/or polluted water in our lakes and rivers	66	26	4	1	97
Stress to plants, trees, and/or grass in your yard and community	51	35	9	2	97
Property damage or other issues due to flooding and heavy rains	40	21	18	12	91
Added stress because of flooding, warmer temperatures, heavy snowfall, or drought	64	23	15	0	102



Public Engagement Results

Tell us how we can help you and your community prepare for and adapt to the impacts of climate change from the table.	
Less cars	
add more BMPs to cities	
agricultural runoff mitigation	
Daylight storm sewers	+1
providing a visualization of effects (we aren't really able to see the change in our life spans)	
trees- advice on what to plant, advocate for only native trees being planted, take care of Blvd. trees	
More Trees	+1
Free and accessible classes for community teaching about current resources (Cooking, foraging, plants, etc.)	
Better shoreline plantings	+1
spreading awareness and keeping people educated	
provide financial compensation for loss of profit from climate change	
educate future generations	+1
sign petitions to stop bad causes like oil drillings, spread awareness.	
more green space in empty lots	
Equity-- $ and resources to marginalized communities	+2
Plant native plants, monetary access to planting	+3
Educating people on ways climate change affects quality of life and ways they can fight climate change	
More native plant sand less fertilizer and herbicides	+2
managing increased tick populations	
what best plants to plant and how to care for plants	
grants for converting lawn to native plants for residents	+1
zero or low emission transportation: bike, trails, green space	
Lake water quality- street drains street rain, rain gardens, less lawn	
shoreline restoration with native plants	
plant trees and native plants	
education partnered with community to learn together	
educate the public	
Alana- age 6: more purple plants!	
no mowing around lakes and plant deep rooted plants	
what documentation can we read to better make a change?	
clover is a nice lawn substitute for grass	
reinforce river/creek/pond banks with trees and other natural anti-erosion measures (native plant systems with deep roots)	

Public Engagement Results

Tell us how we can help you and your community prepare for and adapt to the impacts of climate change from the table.	
recycle & compost	
soil management with better native plants to help with dryness happening more often	
no mow lawn areas	+1
educating those in my family who may not know about climate change	
less pollution more trees	
grants for native lawn/rain gardens	
more elected officials who support this work	
more community convos and resources for communal support	
plant edible species when you plant	
create more manmade space for aquaculture (fish plant production on parks) no chemicals	