

DATE: December 1, 2025

TO: Council Sustainability Committee

FROM: Lauren Anderson, Sustainability Analyst II

VIA: Danielle Lee, Chief Sustainability and Resiliency Officer
Audrey Seymour Ramberg, Assistant City Manager

SUBJECT: **Draft Climate Vulnerability Assessment and Scope of Services to Develop an Integrated Climate Strategy Comprised of Decarbonization and Resiliency**

RECOMMENDATION

Staff recommends the Council Sustainability Committee:

1. Review and provide feedback on the draft Climate Vulnerability Assessment;
2. Recommend that the City Council direct staff to develop a 2045 Climate Strategy that integrates decarbonization and resiliency and includes a five-year climate roadmap; and
3. Recommend City Council approve an amendment to the agreement with Cascadia Consulting Group for \$148,240 to include additional decarbonization and resiliency analysis, resiliency planning, and an integrated 2045 Climate Strategy, resulting in a total not-to-exceed amount of \$371,245.

BACKGROUND

On [November 19, 2024](#), the City Council approved a scope with Cascadia Consulting Group (Cascadia) to undertake a 2035 and 2040 decarbonization analysis as well as a climate vulnerability assessment (CVA). The focus of this memorandum is the CVA; a status update on the decarbonization analysis was presented to the Council Sustainability Committee (CSC) on [November 6, 2025](#). The CSC concurred with staff recommendations to approve the remaining five local emissions-reduction actions to be included in the model and direct staff and Cascadia to develop a five-year decarbonization roadmap focused on achieving the 2045 decarbonization goal already adopted by the City Council and requested a minor expansion of the decarbonization analysis to incorporate carbon sequestration from Mountain View's marshland.

On [April 29, 2025](#), the CSC approved the framework, deliverables, and focus areas for the CVA and suggested that the CVA include a stormwater vulnerability assessment. City staff and the Cascadia team have since completed a draft CVA that is informed by input from other City departments, including Public Works, Community Development, Fire, and Housing.

This report presents the initial findings of the vulnerability assessment and recommendations regarding the development of a 2045 Climate Strategy that integrates decarbonization and resiliency and includes a five-year climate roadmap. The recommendations also include a contract amendment to fund the consultant work needed to enhance the vulnerability assessment and decarbonization analysis based on CSC feedback and the changing federal, state, and regional legislative context. Staff seeks feedback on the draft CVA described in the Analysis section and included as Attachment 1 – Draft Climate Vulnerability Assessment, as well as direction to bring to the City Council a proposed contract amendment for the development of a 2045 Climate Strategy. Amending the agreement with Cascadia Consulting Group to support the development of a 2045 Climate Strategy and five-year Roadmap incorporating resiliency and decarbonization will increase the total contract amount to over \$250,000, which requires City Council approval.

ANALYSIS

Draft Climate Vulnerability Assessment

The CVA evaluates how climate-related hazards could impact people, infrastructure, and services in Mountain View. This analysis can serve as a foundation for future planning efforts to strengthen the community's ability to adapt to a changing climate and mitigate anticipated impacts on health and wellbeing, emergency management, economic stability, and housing and infrastructure.

Summary of Climate Impacts

This analysis examines primary climate impacts, such as rising temperatures and changing precipitation patterns, which in turn contribute to secondary impacts, including more frequent extreme heat events, wildfires, and air pollution. Extreme weather events driven by climate change will increasingly disrupt critical systems, such as power distribution and public transit, significantly impacting the community and the City's operations. Figure 1 summarizes the key climate hazards discussed in the CVA and how they are projected to impact Mountain View:

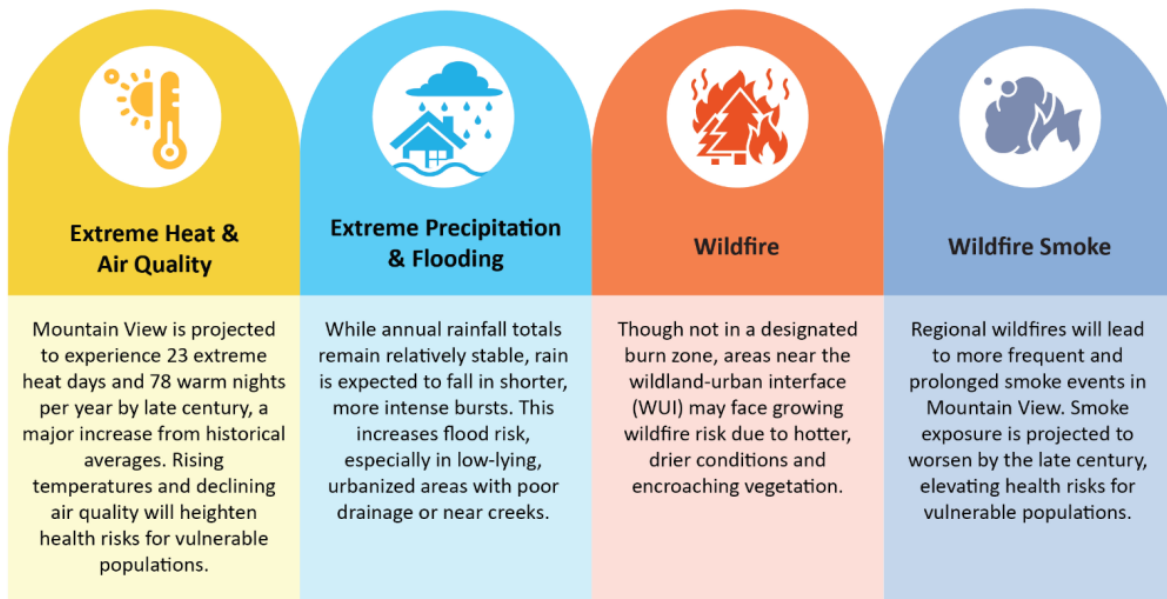


Figure 1: Key Climate Hazards in the CVA¹

The CVA is not a comprehensive study of all climate vulnerabilities in Mountain View, but rather an analysis conducted to fill critical gaps and build upon existing climate resiliency initiatives. To avoid duplicative work, the CVA does not focus on climate vulnerabilities, such as sea level rise, drought, and ecosystems, that are already addressed through other City initiatives.

Climate-Sensitive Populations

The CVA identifies the following populations (with estimated percentage of the population, where available) as more vulnerable to climate-related hazards due to underlying health conditions, socioeconomic barriers, or limited access to protective infrastructure or services:

- Low-income households (32% of households earn less than 80% of the County Area Median Income)
- Children and youth (20% under 18 years old and 6% under 5 years old)
- People of color (53% of the population)
- People with physical or mental conditions or disabilities (4% of the population under 65 years old)

¹ An “extreme heat day” is defined as a day when the maximum temperature exceeds 91°F, which represents the 98th percentile of historical daily maximum temperatures in Mountain View (Cal-Adapt, 2022).

- People with health conditions or medical device dependencies
- Older adults, age 65 and up (12% of the population)
- Outdoor and seasonal workers (10% of the workforce)
- Unhoused and unstably housed residents (1% of the population)
- Non-English speakers (9% of the population is linguistically isolated)

The CVA examines how climate hazards disproportionately affect these groups. For instance, many of these populations are highly sensitive to heat and poor air quality, lack the resources to seek shelter during climate emergencies, or have limited access to cooling or air filtration. The CVA also identifies and maps neighborhoods with a high concentration of climate-sensitive populations that overlap with areas of elevated climate vulnerability.

Climate Vulnerability Assessment Findings

In alignment with the [Intergovernmental Panel on Climate Change framework](#), the Mountain View CVA assesses climate vulnerability as a function of exposure, sensitivity, and adaptive capacity across four key sectors. Vulnerability assessments can be organized by climate impact or by the sector impacted, and both approaches can be valuable. A climate-impact approach offers a full picture of the implications of a specific climate impact. This approach provides a more comprehensive understanding of a given climate risk. A sector-based approach helps identify all the climate risks and adaptation needs within each sector. This approach enables more comprehensive resiliency planning tailored to specific sectors.

The Mountain View CVA is a sector-based vulnerability assessment that contains summarized information organized by climate impact, offering both perspectives on the city's vulnerabilities to climate change. To assess vulnerability, each subsector was assigned relative exposure, sensitivity, and adaptive capacity scores. Overall vulnerability scores, ranging from 0 to 10, were estimated by adding exposure and sensitivity scores and then subtracting the adaptive capacity scores. The resulting scores are categorized as follows:

- Low: 0 to 2
- Moderate: 3 to 4
- High: 5 to 6
- Very high: 7 to 10

The CVA provides a more detailed scoring methodology, detailing the exposure, sensitivity, and adaptive capacity scores, as well as the calculated vulnerability scores. Table 1 summarizes the overall vulnerability scores for each sector and subsector.

Table 1: Overall Vulnerability Scores per Sector and Subsector

Sector	Subsector	Overall Vulnerability Score				
		Extreme Heat	Extreme Precipitation & Flooding	Wildfire	Wildfire Smoke	Air Quality ²
Health & Wellbeing	Physical Health	High	Moderate	Low	High	Moderate
	Mental Health	High	Moderate	Low	High	N/A
Emergency Management	Critical Facilities & Services	High	Moderate	Low	High	N/A
Economy	Local Businesses	Moderate	High	Moderate	Moderate	N/A
Housing & Infrastructure	Housing	High	Moderate	Moderate	Moderate	N/A
	Transportation	Moderate	Moderate	Low	Low	N/A
	Stormwater Systems³	N/A	High	N/A	N/A	N/A

Health and Wellbeing

Community health and wellbeing are highly vulnerable to extreme heat and wildfire smoke, moderately vulnerable to extreme precipitation, flooding, and air quality, and minimally vulnerable to wildfire.

Extreme heat poses a serious risk to physical and mental health. This is largely because a significant portion of the community will be exposed to extreme heat in a changing climate, and many climate-sensitive populations are highly affected by prolonged heat events. The number of Heat Health Events⁴ is expected to double by mid-century and increase nearly sixfold by the end of the century. Such events are expected to increase heat-related illnesses and may also contribute to greater anxiety, irritability, and mood instability among residents.

Although Mountain View is not within a designated high Fire Hazard Zone and has low wildfire vulnerability, smoke from regional wildfires will increasingly affect community health and wellbeing, especially among sensitive populations. While overall vulnerability to air quality is moderate, the combination of extreme heat and unhealthy air pollution levels can pose a significant threat to public health.

Extreme precipitation and flooding present a moderate risk to health and wellbeing in Mountain View, primarily because only limited areas of the city (approximately 12 percent) lie within

² Air quality is assessed only in the Health & Wellbeing sector, as it primarily impacts human health outcomes rather than infrastructure or environmental systems.

³ Extreme precipitation and flooding are the only climate hazards assessed for the stormwater systems subsector.

⁴ A “Heat Health Event” refers to a day when temperatures reach levels associated with increased emergency department visits, hospitalizations, or deaths due to heat exposure.

designated flood hazard zones. Mountain View's flood hazard zones are primarily concentrated in the North Bayshore and other areas dominated by commercial rather than residential uses. Even minor flooding can disrupt access to essential health services, particularly for residents with limited mobility or urgent medical needs, and can increase the risk of illness from contaminated water and mold growth.

Mountain View has implemented programs and policies to strengthen community health and wellbeing in the face of climate impacts. Programs that promote housing stability, such as affordable housing, Safe Parking, and homeless case management, help the unhoused and living-in-vehicle populations access safe shelter from extreme weather. To address extreme heat, the City operates cooling centers, plants shade trees, and has piloted heat resilience toolkit distribution. The City has also undergone or planned capital improvement projects to mitigate flood risk within the floodplains, and the City code mandates floodproofing for new developments in floodplains.

As summarized in the Executive Summary of the CVA, the key takeaways regarding impacts on Health and Wellbeing include:

- Extreme heat and wildfire smoke are top health threats
- Heat plus humidity intensifies risk
- Air quality is deteriorating
- Localized pollution adds cumulative exposure
- Unhoused residents face direct exposure
- Flooding disrupts access to care
- Climate stress affects mental health
- Existing resources help but remain limited
- Heat "hot spots" overlap with schools and paved areas

Emergency Management

Mountain View's critical facilities and services are highly vulnerable to extreme heat and wildfire smoke, moderately vulnerable to extreme precipitation and flooding, and marginally vulnerable to wildfire. These include police and fire stations, hospitals, the Emergency Operations Center, and community centers that function as shelters, cooling centers, and trusted gathering places during emergencies.

Critical facilities and services in Mountain View are located in both moderate and severe heat areas. Prolonged heat events increase hospital admissions for heat-related illnesses, strain the power grid, reducing the operability of fire and police stations, and impact emergency personnel. Smoke events can overwhelm emergency medical services dispatch with respiratory calls, and facilities without upgraded air filtration may be unable to provide safe indoor conditions. At the

same time, large regional fire events can draw Mountain View's fire and EMS resources into mutual aid.

Several critical facilities in Mountain View, including schools, medical centers, and community-serving sites, are located within or near floodplains. Flooding and stormwater surges can inundate key emergency response routes, delaying police, fire, and emergency medical services access.

Mountain View has programs and systems in place to strengthen emergency management in response to growing climate impacts. Mountain View maintains a local Emergency Operations Center (EOC) and is developing Continuity of Operations and Disaster Recovery Plans to strengthen emergency readiness. The City participates in mutual aid agreements for dispatch, SWAT, and fire services, which provide backup resources when local capacity is strained. Emergency communications are supported by AlertSCC, which delivers alerts in multiple formats and languages. The City also coordinates a Community Emergency Response Team (CERT), a neighborhood initiative that offers local disaster preparedness and response training. The City has also assessed the vulnerability of its facilities to flooding and sea level rise through recent studies and integrated the findings into its Capital Improvement Program.

As summarized in the Executive Summary of the CVA, the key takeaways regarding impacts on Emergency Management include:

- Extreme heat and wildfire smoke are the most disruptive hazards for emergency operations
- Multiple critical facilities sit in high-heat areas
- Flooding threatens emergency access routes and key buildings
- Smoke from regional wildfires drives spikes in emergency calls
- Neighborhood-level preparedness adds important redundancy
- The City has strong coordination systems but limited backup capacity

Economy

Mountain View's economy is highly vulnerable to extreme precipitation and flooding and moderately vulnerable to extreme heat, wildfire smoke, and wildfire.

Extreme heat poses a growing risk to Mountain View's local businesses, particularly for industries that rely on outdoor workers, such as construction, landscaping, and maintenance. High

temperatures increase health risks for employees, reduce labor productivity, and contribute to lost wages. Heat may also lead to reduced sales tax revenue and increased cooling costs for businesses.

Wildfire events pose a high risk to local businesses across the region, even for communities like Mountain View that face low direct ignition risk. Wildfires can cause prolonged power service outages, regional transportation disruptions, and supply chain slowdowns that ripple through the broader economy. Even in areas not directly affected by flames, businesses may experience closures, staffing shortages, or reduced consumer activity during evacuation periods. Wildfire smoke can disrupt the local economy by reducing earnings and employment as individuals respond by spending more time indoors, reducing outings, or missing work. Outdoor workers, as well as those who work in poorly ventilated indoor spaces, face heightened risks.

Mountain View has commercial, mixed-use, office space, and industrial zones within flood hazard zones, primarily north of and along Highway 101, that are particularly vulnerable to flooding. Mountain View's flood hazard zones contain employment centers and structural assets valued at over \$670 million, representing significant exposure for both public and private infrastructure. Businesses in affected areas may face service interruptions, supply chain delays, and long-term closures. Indirect impacts, such as road and rail shutdowns, can delay commuting, hinder the movement of goods, and reduce regional productivity.

The City and the private sector are undertaking efforts to support local businesses in adapting to projected climate impacts. Mountain View's Economic Vitality Strategy supports economic stability, which is foundational to resilience. Large technology employers are embarking on resilience planning for their facilities. The City building code also includes floodproofing and air filtration requirements that will enhance resiliency for new developments.

As summarized in the Executive Summary of the CVA, the key takeaways regarding impacts on the Economy include:

- Extreme heat and flooding are the primary economic risks
- Outdoor and service workers face growing vulnerability
- High-heat days will have measurable economic impacts
- Flood-prone business zones contain employment centers and valuable assets
- Wildfire smoke has indirect but significant economic costs
- Small businesses are least equipped to recover
- Larger employers are beginning to integrate climate resilience

Housing

Mountain View's housing stock is highly vulnerable to extreme heat and moderately vulnerable to extreme precipitation, flooding, wildfire, and wildfire smoke. These climate hazards can

damage structures, reduce habitability, displace residents, and deepen existing housing and environmental health inequities, particularly for those with limited resources and fewer housing options.

Extreme heat poses risks to residents living in heat-vulnerable homes, particularly in areas with low tree canopy coverage and high concentrations of pavement or impervious surfaces. Several of Mountain View's residential and mixed-use neighborhoods are in moderate to severe heat areas, including Shoreline West, Blossom Valley, blocks south of Rengstorff Park, and blocks east of Sylvan Park. Such areas tend to retain heat and raise indoor temperatures, particularly in older homes lacking insulation or cooling, and in multifamily buildings with poor ventilation. Mobile home parks in east Mountain View – Sunset Estates Mobile Home Park, New Frontier Mobile Home Parks, and Sahara Mobile Village – are located in some of the hottest parts of Mountain View, with temperatures well above the city average. Low-income renters may struggle to afford higher energy costs for cooling, if air conditioning is available at all.

Housing in neighborhoods near Permanente Creek, Stevens Creek, and the Bay are at risk of flooding. Flash flooding and stormwater overflow could affect basements, ground-floor units, older units not built to current building and floodplain management codes, and mobile home parks in low-lying and creek-adjacent areas, such as Santiago Villa and Sahara Mobile Village that are located along Stevens Creek.

While major wildfires are unlikely in Mountain View, regional wildfire activity may displace residents elsewhere in the Bay Area, increasing housing demand and costs. Rising wildfire risk statewide is also driving up fire and home insurance premiums across California. Additionally, smoke exposure from regional fires could contribute to poor indoor air quality. Many homes, particularly older units, are vulnerable to smoke infiltration due to poor sealing, lack of filtration systems, and outdated ventilation.

Efforts to promote housing stability also increase adaptive capacity. The City has adopted policies such as high-density zoning, rent-stabilization and just cause evictions, rental unit replacement requirements, and tenant relocation assistance to prevent displacement and increase housing affordability. The North Bayshore Precise Plan requires that future residential development in the North Bayshore neighborhood follow floodproofing guidelines. The City also partners with public and private entities to improve disaster preparedness and mitigation, including participation in countywide hazard planning and coordination with emergency service providers.

Transportation

Mountain View's transportation network is moderately vulnerable to extreme heat and flooding and minimally vulnerable to wildfire and wildfire smoke. These disruptions disproportionately impact transit-dependent individuals and those without access to private vehicles.

Extreme heat can damage Mountain View's transportation infrastructure and affect how people travel. High temperatures can accelerate pavement degradation, increase the risk of rail warping for Caltrain and VTA light rail lines, and affect traffic signal systems and other heat-sensitive components. Extreme heat can also reduce transit ridership if stops and vehicles lack adequate shade or cooling. Heat-related equipment stress can lead to transit delays or reduced service levels.

Poor air quality from wildfire smoke can discourage biking, walking, and transit ridership, impacting the health and environmental benefits of alternatives to single-occupancy vehicle transit. Wildfire smoke also poses health risks for transportation workers and for the residents who rely on active transportation and public transit to access jobs, schools, or services.

Localized flooding poses a moderate risk for Mountain View's transportation network, especially along major routes like Shoreline Boulevard, Charleston Road, and Central Expressway. Intense storms can overwhelm stormwater infrastructure, causing temporary road closures, traffic delays, and interruptions to emergency response routes. Regional transit infrastructure also faces risk. Sections of the Caltrain and VTA light rail systems run at-grade through flood-prone zones. Roadbeds and transit foundations near the Bay also face risks from sea level rise and rising groundwater.

Mountain View and regional partners have plans and policies to prepare transportation systems for increasing climate impacts. Since most transit services are managed by regional agencies, Mountain View's transportation resilience depends heavily on coordination with these partners. The City's Active Transportation Plan and Vision Zero Policy promote resilience by reducing vehicle dependence and incorporating shade trees and green stormwater infrastructure along roadways. Vision Zero's emphasis on equity enhances adaptive capacity by creating safer, shaded, and accessible routes, helping vulnerable residents reach cooling centers and essential services during climate emergencies.

Stormwater Systems

Mountain View's stormwater network is highly vulnerable to extreme precipitation and flooding. Modeling of the City's storm drain system has identified risks of localized flooding during 25- and 100-year storm events—particularly in the North Whisman and Shoreline areas, where flat topography and undersized pipes limit drainage capacity. There are also specific locations where undersized pipes cannot accommodate runoff even during 10-year storms, such as south of Highway 101 near Charleston Road, along Fairchild Drive and North Whisman Road, and north of Cuesta Drive near Hale Creek. Additionally, storms during winter 2022 and 2023 required erosion repair for flood protection on Stevens and Permanente Creeks.

Mountain View's adaptive capacity for stormwater management focuses on reducing flood risk, maintaining drainage performance during major storms, and keeping key systems operational

during outages. The City's Public Works Department oversees stormwater infrastructure and has identified over \$47 million in priority upgrades, including new drainage systems, expanded detention basins, and upgraded pump stations to handle future 25- and 100-year storm events. These efforts, supported by regional regulations and programs promoting best practices in stormwater management, help improve flood resilience and reduce pollution entering the Bay.

As summarized in the Executive Summary of the CVA, the key takeaways regarding impacts on Housing and Infrastructure include:

- Extreme heat is the most widespread housing risk
- Air quality pressures are concentrated near highways
- Flood risk intersects with existing homes and planned growth areas
- Transportation reliability is vulnerable during heat and storms
- Stormwater capacity is a critical constraint
- Planned investments create a strong starting point

Best Practices for Building Resilience

The CVA highlights best practices from other jurisdictions and agencies focused on infrastructure upgrades, protecting vulnerable populations, enhancing emergency preparedness, and integrating climate considerations into planning. These examples suggest possible directions for future resilience efforts, which would require further analysis, funding, and community engagement to prioritize and implement.

2045 Climate Strategy

A CVA is typically the first step towards developing a comprehensive climate adaptation plan that focuses on adjusting to the impacts of climate change that are already happening or likely to occur. Resiliency strategies can be integrated into a plan that discusses both decarbonization and resiliency, or covered in a standalone adaptation plan. Staff recommends integrating resiliency into the decarbonization plan that is already being developed through the current contract with Cascadia Consulting Group. Developing an integrated plan that considers decarbonization and climate resiliency helps identify and coordinate strategies that both reduce greenhouse gas emissions and strengthen the community's ability to adapt to climate impacts. An integrated approach provides a better understanding of the trade-offs that can occur between decarbonization and resiliency strategies, and can offer approaches for mitigating these tensions. Integrating both topics into a single plan is also more time-efficient and cost-effective than developing two separate plans, resulting in a lower overall project budget.

Recommended Amendments to the Scope of Services

The recommended scope of services, included as Attachment 2, is structured around the development of a 2045 Climate Strategy (with the target year discussed with the CSC at the [November 6, 2025](#) meeting) that integrates decarbonization and resiliency. This scope also includes minor enhancements to the decarbonization and resiliency analysis, as well as a 10% contingency to accommodate potential adjustments to the project scope in the future, such as expanded outreach efforts, responding to directives from the CSC for additional outreach or modeling, additional CSC meetings, or modifying the analysis to reflect changes in regional, state, or federal policies. Table 2 details the additional budget and tasks for the proposed amendment to the contract.

Table 2: Recommended Amendments to the Project Budget

Task No.	Description	Budget
1	Decarbonization Goal Analysis	\$24,900
2	Climate Vulnerability Assessment	\$10,000
3	Integration of Resiliency into 2045 Climate Strategy	\$79,720
4	Project Contingency (10% of total project budget)	\$33,620
Total		\$148,240

The recommended scope of services includes stakeholder and community engagement to test the assumptions and findings in the CVA and gain feedback on proposed resiliency strategies. This would be accomplished through two community listening sessions. If desired by the CSC, community engagement could be expanded to include an in-person survey, more robust outreach to community-based organizations, or other inclusive and culturally-sensitive engagement approaches. This approach could increase input from vulnerable populations but may increase project costs and extend the timeline.

CSC and Council Engagement

Staff will continue to solicit feedback from the CSC and Council at key points throughout the project, including the development of project goals and priorities, as well as the review of draft and final reports. If the CSC directs staff to develop an integrated 2045 Climate Strategy, staff anticipates presenting the final plan to the Council for adoption by early 2027.

Developing two standalone plans would result in an extended timeline for completion, but could be adopted by the City Council in phases, with the Decarbonization Strategy presented in the second half of 2026.

FISCAL IMPACT

The City's current agreement with Cascadia is for a not-to-exceed amount of \$223,005, which includes \$149,328 for the Decarbonization Goal Analysis and \$73,677 for the Climate Vulnerability Assessment. The total cost for the proposed amendments is \$148,240, and the total recommended not-to-exceed contract amount is \$371,245. There is sufficient budget in the Sustainability Project Capital Improvement Program (Project 20-99) to cover the services. No additional appropriation is needed. The recommended fees are within the range typically charged for such services based on similar types of projects in the region.

ALTERNATIVES

1. Recommend that the Council direct staff to develop a standalone Resiliency Strategy; this could increase the project cost and timeline.
2. Recommend that the Council direct staff to revise the scope of services and budget for the development of the integrated 2045 Climate Strategy to include more robust community engagement; this could lengthen the project cost and timeline.
3. Recommend that the Council direct staff not to pursue resiliency planning at this time.
4. Provide other direction.

Attachments: 1. Draft Climate Vulnerability Assessment
 2. Recommended Scope of Work for the Development of a 2045 Climate Strategy