Amendment No. 1	Organization and Address BERK Consulting 2200 Sixth Avenue, Ste 1000 Seattle, WA 98121 Phone: 206-493-2367	
Original Agreement Number 9489		
Project Number	Execution Date	Completion Date 6/1/23
Project Title Redmond 2050 - SEPA Review and Documentation Consulting Services	New Maximum Amount Payable $ 415,000	
Description of Work Expansion of the climate resiliency work being completed by BERK in the Redmond 2050 project to include a Climate Vulnerability Assessment (a priority action plan item from the 2020 Environmental Sustainability Action Plan).		

The Local Agency of City of Redmond, WA desires to amend the agreement entered into with BERK Consulting and executed on 8/19/20 and identified as Agreement No. 9489

All provisions in the basic agreement remain in effect except as expressly modified by this amendment.

The changes to the agreement are described as follows:

I

Exhibit A, SCOPE OF WORK, is hereby changed to read:

The scope of work is amended to include Task 8 (see attached).

II

Exhibit B, WORK SCHEDULE, is amended to change the date for completion of the work to read:

N/A

III

Exhibit C, PAYMENT SCHEDULE, shall be amended as follows:

N/A

as set forth in the attached Exhibits, and by this reference made a part of this amendment.

If you concur with this amendment and agree to the changes as stated above, please sign in the appropriate spaces below and return to this office for final action.

By: _____ By: _____

_____ _____

Consultant Signature Approving Authority Signature

_____

Date

Climate Vulnerability Assessment

BACKGROUND

In September 2020, the Redmond City Council adopted the Environmental Sustainability Action Plan (ESAP) and a Climate Emergency Declaration, which together create a roadmap to reduce community-wide greenhouse gas emissions, preserve and enhance Redmond's natural resources, and create a more climate resilient community.

Climate change has and will continue to impact Redmond, King County, and the broader Puget Sound region. Warmer temperatures, shifting hydrology and precipitation regimes, more regional wildfires, and more intense and frequent extreme weather events will negatively impact the Redmond community, affecting our collective health, safety, economy, and environment.

The City seeks to develop a Climate Change Vulnerability Assessment (Assessment) that identifies climate change impacts and risks in the Redmond area, analyzes these impacts' effects on the City and community, and prioritizes Redmond's vulnerabilities. The Assessment will use available data to identify and evaluate the vulnerability of Redmond's residents, built environment, and natural systems to climate factors such as extreme heat and extreme precipitation. The Assessment will also identify strategies to create a more climate resilient community.

This work will be folded into the Redmond 2050 umbrella through an amendment to the contract with BERK consulting for the Environmental Review & Documentation to add on the Assessment as a new task (Task 8). Folding the Assessment into the Redmond 2050 work expands on the climate change analysis underway to expedite the Climate Vulnerability Assessment and allow for its integration into the work being completed for Redmond 2050.

CLIMATE VULNERABILITY AND RESILIENCY ASSESSMENT (TASK 8)

The Climate Vulnerability and Resiliency Assessment will evaluate the vulnerability of Redmond's residents, built environment, and natural systems to climate factors including extreme heat and extreme precipitation, while also identifying strategies to create a more climate resilient community. The goals of the initiative include:

a. Identify vulnerabilities associated with climate change across the community, including but not limited to wildfires, heatwaves and drought, extreme weather events, extreme precipitation and flooding, etc.;
b. Identify communities and populations within Redmond that may be especially vulnerable to climate impacts;
c. Identify how to incorporate resiliency measures into capital improvements and operational practices;
d. Develop an interactive vulnerability map to support City planning and outreach efforts; and
e. Leverage findings from the assessment to prepare a resiliency strategy

This project is divided into seven main tasks:

Climate Vulnerability Assessment

8.1. Methodology

The contractor will develop a methodology for the Assessment that is based on well-supported climate change assumptions and existing City research and analysis, leveraging expert guidance and existing literature on the topic to develop the methodology. The City seeks an Assessment that, while tailored to Redmond, acknowledges and makes use of its context among regional, national, and global climate science efforts.

a. Recommend a methodology for projecting climate change impacts, including scientific basis and availability of existing data and information sources. The recommendations should include planning horizons and interim projection years and correspond to the planning horizon for the Redmond 2050 project (for example ~~2020~~2030, 2050, 2080).
b. Define and recommend climate change scenarios that provide projections for, at a minimum, the following impacts:
    - Precipitation and flooding
    - Ambient air temperatures, heat index, and extreme heat events
    - Wildfire and drought
    - Extreme weather
    - Etc.

Assumptions:

- BERK will conduct the task with the SEPA team and with an organization like UW Climate Impacts Group.
- The consultant team will primarily leverage existing data sources, using the most recent data available, with a particular focus on data sources that require little manipulation prior to integration into the assessment tool.

8.2. Baseline information

a. Building upon work completed in Task 2, review and inventory relevant science-based climate change methodologies and data sources, including vulnerability assessments, modeling studies, and best practices. Data and work completed and available from other entities should not be repeated but may need to be extracted into a format that can be evaluated at a city level.
b. Document historic climatic patterns specific to Redmond and their impacts on critical systems in a format that can be easily understood by the public, including graphics.
c. Ensure relevant data on critical systems and identify past, existing, and foreseen conditions of each system collected in Task 2 in a format that is usable for Task 8 analysis. Prioritize information for critical systems based on potential effect to vulnerable populations. In Task 2.1, the consultant identified gaps in data; where possible the consultant will obtain and/or create the most current data available and update/convert to GIS layers for the Environmental Baseline to allow for an accurate measurement/analysis of change over time.

Climate Vulnerability Assessment

Assumptions:

- BERK will conduct the task with the SEPA team and with an organization like UW Climate Impacts Group.

8.3. Climate change impacts

Using agreed-upon climate change projections and methodologies, the contractor will analyze the impacts of climate change on critical systems in Redmond. The analysis will be quantitative and geospatial wherever possible.

a. Collect analysis of impacts on Redmond systems. The analysis of projected impacts will cover at a minimum the following critical systems:
    i. i. Physical infrastructure and built environment: transportation, drinking water, wastewater, stormwater, buildings, as well as energy and communications components (at a high level where service is not provided by the city).
    ii. Social and community systems: public health, air quality, emergency response (including evacuation and shelter challenges), social services, vulnerable populations, neighborhoods, underserved communities, accessibility, etc. The social and human systems element of the assessment is a critical component to inform future climate mitigation programming as well.
    iii. Natural systems: surface and groundwater quality and quantity, green space, urban forest, regulated critical areas, fish and wildlife.
    iv. Economic systems: Redmond businesses, future development and planned growth, local and regional employment centers.
b. Prepare a descriptive narrative, quantitative dataset, and GIS-based maps of climate change impacts on Redmond systems. A key planning and communication education tool, visual representation of projected impacts such as flooding or heat island maps and demographic data within neighborhoods, will also inform the vulnerability analysis.
c. The interrelationship of impacts the risks associated with cascading effects should be considered to the degree possible.

Assumptions:

- All topics: Budget is scoped for two horizon years and six climate change scenarios identified in Task 8.2.
- Physical Infrastructure – focus on potential impacts on the types of critical systems identified below:
    - Transportation: roads, signals, bridges, sidewalks;
    - water/wastewater: distribution/collection system, treatment plants, pumps, water supply;
    - stormwater: collection and treatment system; and

- buildings: general building stock, critical facilities as identified by the City.
- Include (at a high level) energy: power grid/supply and communications: cellular, phone, internet.

- Other Systems (Social, Natural, Economic) – prioritize effort to focus on topics that are most relevant / critical for vulnerable populations.
- Analysis will include reviewing the City's critical systems for a general understanding of each of the systems. The potential impacts will be high level and focused on the whole system.
- Deliverable is a technical memo including one draft and one final review.

8.4. Vulnerability and risk assessment

The Assessment is intended to provide the City and community with a baseline understanding of vulnerabilities as well as a preliminary ranking of the vulnerabilities' importance. The contractor will assess the vulnerabilities of critical systems to projected impacts and prioritize vulnerabilities based on a risk-based methodology. As noted in Goal b (pg. 2) and Section 8.3.a.ii, a key element of the assessment includes identifying populations in Redmond that are most vulnerable to a changing climate; this element should be a robust component of the assessment to guide future programming and investment in support of the City's equity and inclusion priorities.

a. In collaboration with the City, the contractor will develop an approach to prioritizing system vulnerabilities for each of the four key systems outlined in Section 8.3.a that incorporates criteria such as mitigation-adaptation co-benefits. Approach could categorize and prioritize findings and assess risks by evaluating the likelihood and consequences of the change or impact based on exposure, sensitivity, and adaptive capacity.

b. Conduct vulnerability assessment by analyzing the potential climate change impacts on critical systems against the identified criteria.

c. Prepare a vulnerability matrix which summarizes the vulnerability of critical system and prioritizes the results into high, medium, and low vulnerability.

    - Deliverable is information entered into pre-determined format (matrix or technical memo). Includes a draft and final review.

8.5. Resilience strategy

a. Provide information on community vulnerabilities that can be used as a basis for evaluation of the Growth Alternatives and future climate adaptation and resiliency plans for the City.

b. Develop and prioritize the appropriate strategies to reduce vulnerabilities and inform the incorporation of resiliency measures into capital improvements, planning, operations, and maintenance practices.

Climate Vulnerability Assessment

c. Evaluate compatibility of the proposed strategies with existing regional plans and initiatives, such as the Washington State Department of Natural Resources Plan for Climate Resilience, King County Strategic Climate Action Plan, Water Resource Inventory Area 8 Salmon Recovery Plan, King County Wastewater Treatment Divisions' Clean Water Plan, Cascade Water Alliance Strategic Plan, etc.

d. Evaluate compatibility of the proposed strategies with existing City plans and initiatives, including, but not limited to: the Comprehensive Plan, Community Strategic Plan, Environmental Sustainability Action Plan, Transportation Master Plan, Utilities Strategic Plan, Watershed Plan, Water System Plan, General Sewer Plan, Regional Stormwater Facilities Plan, Comprehensive Flood Hazard Management Plan, Facilities Management Plan, , etc., and SEPA Planned Actions.

e. Create a detailed summary of steps followed such that the same methods can be used to update the vulnerability assessment going forward.

f. Provide specific recommendations on which critical infrastructure and operations should undergo more specific study in the future and what steps that assessment should include. Host one to two ad hoc sessions with panel of experts or agencies/partners to weigh in on vulnerabilities and strategies.

Assumptions:

- Support development of strategies to reduce vulnerability.
- Support specific recommendation for more study.
- Strategies will be based on best practices and strategy examples from other plans. Strategies will not be specific (unless already identified as a concern in another document) but will focus on system-wide reduction of vulnerability.
- Strategy should clearly point to limitations of current data, areas that need additional analysis, and provide clear direction on next steps for the City's resiliency efforts.

8.6. Public outreach

The primary purpose of public outreach efforts will be to receive input on analysis and findings, meetings will also serve as an opportunity to increase engagement in addressing climate change vulnerabilities.

a. Deliver and co-facilitate one to two public workshops to engage and receive community stakeholder feedback and inform the development of the Assessment strategies. (Budget Option: Reduce consultant participation to one public workshop.)

b. Deliver at least two City Council presentations in support of the Assessment and Report

c. Develop visual outreach materials to educate the public. Materials can be produced to serve for both the public outreach and the Final Report.

8.7. Final Report

After City review of the vulnerability assessment and input from the public, the contractor will prepare a final report and related communication materials. The intent of the report is to communicate critical findings and information, as well as to provide detailed technical information to the City.

a. Prepare report outline, which shall include, at a minimum:
    i. Description of methodologies
    ii. Characterization of climate change projects and assumptions
    iii. Description of the current/planned state of critical systems
    iv. Explanation of climate change impact effects on systems
    v. Analysis of vulnerabilities and priorities
    vi. Analysis of relevant ongoing or expected policies, laws, programs, or studies that may impact findings of Assessment
    vii. Areas for future research and technical analysis
b. Develop a final public report that outlines Redmond's key climate risks and potential City actions to adapt to a changing climate. The final report should include an Executive Summary that is visually engaging, easy to read, and in language understandable to a lay audience. Appendices could accommodate technical data and findings.

Assumptions:

- The Final Report will use technical deliverables from Task 8.3, 8.4, and 8.5 to inform report.

8.8. GIS integration

a. GIS snapshot of the City's Environmental Baseline data that can be used in the future to compare change over time.
b. GIS mapping of climate change impacts on Redmond (i.e. potential future water levels, etc.).
c. A dynamic GIS-based tool that can be managed, hosted, and utilized by City staff during project and programmatic review to determine if a proposal is in a location that might have future risks or may impact the risks of that area. Attributes tables that include links to proposed and/or optional mitigation measures is desirable.
    i. Tool should also emphasize findings from the social and community systems analysis to inform programming and guide planning efforts to support Redmond's most vulnerable populations.

d. Develop an adaptive management framework, including a proposal for how to keep the tool current as new data becomes available. Include data documentation that includes sources, reliability and margin of error, and frequency of available updates.

DELIVERABLES

1. Data and analysis to be utilized in the Growth Alternative analysis and Environmental Impact Statement.
2. Climate Change Risk and Vulnerability Assessment Report, including a visual, easy to understand, public-friendly Executive Summary.
3. Stakeholder meetings.
4. GIS mapping tool and data dashboard with findings from Assessment, namely the risk and vulnerability index layer as well as methodology detailing update procedures for GIS data.

BUDGET

Task	**Total**
8.1 Methodology	$2,960
8.2 Baseline Information	$2,820
8.3 Climate Change Impacts	$32,620
8.4 Vulnerability and Risk Assessment	$21,205
8.5 Resiliency Strategy	$20,195
8.6 Public Outreach	$5,720
8.7 Final Report	$9,950
8.8 GIS Integration	$21,530
Total Effort	**$117,000**
Task 8.2 Billed to Redmond 2050 SEPA Contingency Funds	($2,820)
Climate Vulnerability Tasks (8.1, 8.3-8.8)	$114,180
Climate Vulnerability Contingency	$10,820
Climate Vulnerability NOT TO EXCEED	**$125,000**
Original SEPA consulting services contract amount	$290,000
NEW TOTAL NOT TO EXCEED AMOUNT	**$415,000**

Assumptions:

- Budget assumes meetings are virtual. No travel time is included.
- Task 8.2 is billed to the SEPA Contingency Funds.

TIMELINE

This Assessment will begin in April upon adoption of the Contract Amendment and will conclude by in the first quarter of 2022, as estimated in the table below:

Climate Vulnerability Assessment Task	Estimated Timeline
8.1 Scenario Development/Vision - Methodology	May
8.2 Baseline Info	May/June
8.3 Climate Change Impacts	June/July
8.4 Vulnerability & Risk Assessment	Aug/Sept
8.5 Resilience Strategy	Sept/Oct
8.6 Public Outreach	Oct-Dec
8.7 Final Report	Dec/Jan
8.8 GIS Integration	May-Jan

This work is within the contract timeline; there is no change to the contract completion date.