

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Authorizing the City Manager to Execute a Professional Services Contract with Cascadia Consulting Group in the Amount of \$79,992 for the Climate Impacts and Resiliency Study
DEPARTMENT:	Community Services Division
PRESENTED BY:	Autumn Salamack, Environmental Services Coordinator
ACTION:	<input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Motion <input type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing

PROBLEM/ISSUE STATEMENT:

In December of 2018, the Shoreline City Council adopted the 2018 Surface Water Master Plan, which identified the current and future needs of the surface water system within City limits. One of the elements identified in the master plan as being necessary to help sustain a successful surface water system is a Climate Impacts and Resiliency Study. On November 19, 2018, the Council also adopted the 2019-2020 Biennium Budget through Ordinance No. 841, which included \$84,872 for a Climate Impacts/Resiliency Study. Tonight's action would authorize the City Manager to execute the contract with Cascadia Consulting Group, Inc. (Cascadia Consulting Group) to conduct that study.

RESOURCE/FINANCIAL IMPACT:

The 2019-2020 budget contains \$84,872 for this project from the Surface Water Management Utility Fund.

RECOMMENDATION

Staff recommends that Council authorize the City Manager to execute a contract with Cascadia Consulting Group in the amount of \$79,992 for the Climate Impacts and Resiliency Study.

Approved By: City Manager **DT** City Attorney **MK**

BACKGROUND

In December of 2018, the Shoreline City Council adopted the 2018 Surface Water Master Plan, which identified the current and future needs of the surface water system within City limits. One of the elements identified in the master plan as being necessary to help sustain a successful surface water system is a Climate Impacts and Resiliency Study.

The Pacific Northwest climate is changing, and research overwhelmingly asserts that it will continue to do so over the next century. Rising temperatures, shifting precipitation patterns, increasing frequency of extreme events, and rising sea levels are all likely to affect the region, and could potentially cause significant impacts to the Shoreline community, such as exacerbated urban flooding and an increase in the frequency of landslides.

The 2018 Surface Water Master Plan states that “some areas throughout the City are already prone to flooding, so when planning improvement projects, the City must consider the increase of rainfall that the Puget Sound region is expected to have in the future. Special approaches should be considered to downscale regional climate models and model scenarios depicting extreme events, and to propose resiliency measures”.

The Climate Impacts and Resiliency Study will a) identify vulnerabilities associated with climate change across the community and b) identify how to incorporate resiliency measures into capital improvements and operational practices specifically for the City’s stormwater system. This study will also provide information on community vulnerabilities that can be used as a basis for future development of climate adaptation and resiliency plans for the City.

DISCUSSION

Tonight’s action would authorize the City Manager to execute the contract with Cascadia Consulting Group to assess community-wide vulnerabilities from climate change and to develop a framework for reducing vulnerabilities and incorporating resiliency measures into capital improvements and operational practices specifically for the City’s stormwater system.

Contract Scope of Work

The contractor’s Scope of Work (Attachment A) outlines key tasks to provide program deliverables, as listed below:

1. Climate Change Projections: Develop City-specific climate change projections from reputable sources. Document historic trends and calculations of future climate change impacts specific to the City, in a format the public can easily understand, including graphics.

2. Vulnerability Assessment: Develop a highly collaborative and cross-sector process that identifies, categorizes, and prioritizes vulnerabilities across the community based on exposure, sensitivity, and adaptive capacity, and categorized by specific risks of climate change.

3. Resilience Strategy: Develop a dynamic framework to adaptively manage the stormwater system. Use spatial analysis to overlay climate change vulnerabilities in the surface water system with opportunities for increasing resilience.

4. Public Meetings: Design and facilitate two workshops, including one with a City-staff advisory group to share the results of the climate impacts assessment and exposure analysis, and gather sector-specific information to inform the sensitivity and adaptive capacity analyses, and another to collaboratively prioritize vulnerabilities relevant to the surface water system to guide the identification and development of resilience strategies and measures. A public presentation will also be provided to Council regarding the study results.

5. Report: Develop a final report that highlights important data and key messages in a clear, concise, and engaging format to resonate with the Shoreline community. This information will also be shared on the City website.

Consultant Selection Process

In April 2019, staff solicited RFP #9360 for the Climate Impact and Resiliency Study. Three proposals were received from the following firms:

- Cascadia Consulting Group,
- Brown and Caldwell, and
- Geos Institute.

Cascadia Consulting Group was selected based on their previous experience working with communities in the Puget Sound region on climate vulnerability assessment and resiliency planning efforts, and direct experience by their subcontractor, Herrera, working on Shoreline’s stormwater system, including a stormwater needs assessment and gap analysis.

COUNCIL GOAL(S) ADDRESSED

This contract implements City Council Goal #2: Continue to deliver highly-valued public services through management of the City’s infrastructure and stewardship of the natural environment, and specifically Action Step #7: Continue implementing the proactive strategy of the adopted 2017-2022 Surface Water Master Plan.

RESOURCE/FINANCIAL IMPACT

The 2019-2020 budget contains \$84,872 for this project from the Surface Water Management Utility Fund.

RECOMMENDATION

Staff recommends that Council authorize the City Manager to execute a contract with Cascadia Consulting Group in the amount of \$79,992 for the Climate Impacts and Resiliency Study.

ATTACHMENTS

Attachment A: Proposed Scope of Work for the Climate Impact and Resiliency Study

Attachment A

Climate Impact and Resiliency Study Scope of Work

Summary

Cascadia Consulting Group (Cascadia) with subconsultant Herrera (together referred to as “consultant team”) shall help the City of Shoreline (City) assess vulnerabilities to climate change impacts and develop a framework for incorporating climate impacts into capital projects and operations. The project shall be organized into six (6) tasks, outlined in the following table with associated costs and anticipated timeframe.

Task	Number of Hours	Estimated Cost	Anticipated Timeframe
▶ Task 1. Climate Change Projections	92	\$12,882	July-September 2019
▶ Task 2. Vulnerability Assessment	146	\$22,332	September-October 2019
▶ Task 3. Resilience Strategy <ul style="list-style-type: none"> • Near-term actions and draft framework • Usability testing and final framework 	139	\$19,850	October-December 2019 January-March 2020
▶ Task 4. Public Meetings <ul style="list-style-type: none"> • Workshops • City Council presentation 	75	\$9,598	September-October 2019 March 2020
▶ Task 5. Report	80	\$11,930	December 2019-January 2020
▶ Task 6. Project Management	30	\$3,000	July 2019 – Contract end date
Total labor	562	\$79,592	
Total expenses (mileage, printing)*		\$400	
TOTAL		\$79,992	

*The consultant team shall be reimbursed mileage pursuant to the Privately-Owned Vehicle Mileage Reimbursement Rate established by the U.S. General Services Administration.

Assumptions

- ▶ All deliverables shall have at least two rounds of City review; for those that have one round of stakeholder review, the City shall have one final round of review after stakeholder input has been incorporated.
- ▶ The consultant team shall provide the City with at least three (3) business days for review of materials. If more time is needed, the City shall provide an updated timeframe to the consultant team.

- ▶ Cascadia shall be responsible for printing costs associated with the kickoff meeting (Task 1) and workshop participant agendas and related materials (e.g., worksheets) (Task 4). The City shall be responsible for all other printing costs, including the copies of the final report and collateral.
- ▶ All memos, reports, and presentations shall be delivered to the City electronically.
- ▶ Any printed materials should be printed on post-consumer recycled paper and double-sided.

Task 1. Climate Change Projections

Task 1a. Develop City-specific climate change projections

The consultant team shall meet with the City's project team (project manager and up to six (6) additional staff) in an initial **kickoff meeting**, during which the consultant team and the City shall:

- ▶ Confirm project objectives, deliverables, schedule, and communication.
- ▶ Discuss the scope to ensure we cover the desired breadth of community-wide vulnerabilities as well as the depth of detail for surface water system resilience. Potential areas of emphasis to focus on, in addition to the surface water system, may include: infrastructure, critical areas and ecosystems, transportation and mobility, parks and open spaces, housing, and human health.
- ▶ Gather additional information about Shoreline's existing plans and activities, preferred scenarios for climate change projections, available data for the analysis, and preferred platform(s) for communicating results with the public.
- ▶ Identify desired external stakeholders to be engaged in the advisory group.

Cascadia shall **summarize the latest literature on observed and projected climate trends** relevant to the City of Shoreline. The review shall cover climate-related risks based on the City's goals, including sea level rise and storm surge, severe precipitation events, flooding, drought, landslides, extreme temperatures, and wildfire. This shall include drawing from several reports published by the Climate Impacts Group, including *State of the Knowledge: Climate Change in Puget Sound*, *New Projections of Changing Heavy Precipitation in King County*, and *Projected Sea Level Rise for Washington State*; the *National Climate Assessment*; and other relevant studies and datasets.

Task 1b. Utilize RCPs to incorporate future emissions estimates

Cascadia shall **compare local, downscaled projected climate change impacts** based on Representative Concentration Pathways (RCPs) 8.5 and 2.6. Cascadia shall draw on existing climate change literature relevant to Shoreline to create future scenarios for the high-end and low-end emissions pathways. The two scenarios shall be used to conduct the climate change impacts analysis, which will inform the vulnerability assessment and resiliency strategy development. Herrera shall support the comparison by reviewing climate projection data for applicability to surface water planning decision-making.

Task 1c Document historic and projected climate change impacts

Cascadia shall lead the development of a **communications product** that clearly articulates the findings of historic trends and projected climate change impacts. Cascadia shall work with the City to identify the most appropriate format for communicating these results with the public and City decision-makers. The product may take the form of a brief summary report, infographic, or flyer and shall be designed by Cascadia's graphic design team and submitted to the City in an editable electronic format.

Task 1 Deliverables

- ▶ Kickoff meeting
- ▶ Memo summarizing findings of historic climate trends and projected climate change impacts (draft and final)
- ▶ Communications product summarizing the memo (draft and final)

Task 2. Vulnerability Assessment

Task 2a. Develop collaborative and cross-sector process

The consultant team shall **develop a framework to assess climate vulnerabilities** across the community that is designed to meet the City's specific needs now and in the future. The assessment process shall involve four primary steps: (1) exposure analysis (2) sensitivity analysis (3) adaptive capacity analysis, and (4) vulnerability assessment. During the assessment process, the consultant team shall engage with the City project team and an advisory team, comprised of additional City staff and external stakeholders to support the vulnerability assessment process and resilience strategy prioritization.

Step 1. Define Terms and Areas of Concern. During the kick-off meeting, the consultant team and the City shall agree upon definitions for exposure, sensitivity, and adaptive capacity and high, medium, and low ratings for each to facilitate prioritization of the most vulnerable areas, infrastructure, and assets.

At this time, the City shall provide any information on sectors, resources, neighborhoods, or issues of particular concern in the community. These shall include neighborhoods where age, income levels, education levels, race and ethnicity, and other demographic factors could increase vulnerability to climate impacts. The consultant team shall center the most impacted populations to ensure that the vulnerability assessment reflects the intersectional factors and inequities that affect exposure, sensitivity, and adaptive capacity of these populations.

Step 2. Exposure Analysis. The consultant team shall use the climate impacts memo (Task 1) to identify known climate conditions that impose stresses on built, natural, and social systems, with a focus on the stormwater system. The consultant team shall use a matrix of climate impacts and system types to indicate which system elements (areas, infrastructure, and assets) are stressed by each climate condition.

After the exposure analysis is complete, the consultant team shall facilitate the **first workshop** (up to 3 hours) with the City project team and advisory group to share information about the climate impacts and exposure analysis and gather sector-specific information to inform sensitivity and adaptive capacity analyses.

Step 3. Sensitivity Analysis. The consultant team shall evaluate projected changes in climate conditions (changes in stressors) in concert with information gathered through the kickoff meeting and information provided by County staff to identify areas, infrastructure, and assets of built, natural, and social systems that are likely to be most affected by climate impacts the City is likely to face. This initial screening shall be done using qualitative, quantitative, and spatial information, including Census demographic data. The consultant team shall define sensitivity indicators and categorize the conditions of each system (built, natural, and social) as having low, medium, high, or unknown sensitivity to climate change, and enter the results into a GIS map to indicate areas or groups of assets that are sensitive.

Step 4. Adaptive Capacity Analysis. This work shall focus on the elements of built, natural, and social systems with the greatest exposure and sensitivity as identified in steps 1 and 2. The consultant team shall assess the

ability of systems to become more resilient to climate impacts through improved management, policies, operations, or infrastructure, taking into account the relative cost of taking action (e.g., labor, construction, supplies, and programmatic costs). At this point in the process, the consultant team shall engage with the City project team and advisory team through online communications (e.g., SharePoint document) to gather input on existing programs that help build resilience and document gaps or impacts that are not adequately addressed with current programs. Site-specific conditions that affect adaptive capacity shall be defined in GIS, to the extent feasible.

Step 5. Vulnerability Assessment. The final step brings the three separate analyses together. The consultant team shall combine maps and analysis of exposure, sensitivity, and adaptive capacity to identify where systems are most vulnerable—that is, where they have high exposure, high sensitivity, and low adaptive capacity. In addition, by defining areas with unknown sensitivity or adaptive capacity, the results shall clearly identify where existing data is not adequate for a conclusive assessment. A case-by-case decision shall be required to determine where additional data is needed to better define vulnerability.

The consultant team shall provide the electronic **draft vulnerability assessment** in the form of a series of factsheets to the City project team and advisory group to receive feedback. The consultant team shall incorporate feedback into a **final vulnerability assessment**.

Task 2b. Review plans and documents to prioritize vulnerabilities

The results of the vulnerability assessment shall provide an understanding of infrastructure with low to moderate vulnerability and infrastructure with high vulnerability. The consultant team shall review these results to identify where more detailed study is needed to define vulnerability, which may include activities such as computer modeling of the system or more field assessment. This task shall highlight priorities for developing resiliency strategies in Task 3.

The consultant team shall hold a **second workshop** (up to three (3) hours) with the City project team and additional City staff, as needed, to review the vulnerabilities relevant to the surface water system and prioritize the areas of vulnerability to address through resilience strategies.

Task 2 Deliverables

- ▶ Framework to assess climate vulnerabilities across the community
- ▶ Overview factsheet and up to four (4) sector-specific factsheets of vulnerability assessment results (draft and final)

Task 3. Resilience Strategy

Task 3a. Develop and prioritize actions

The consultant team shall use spatial analysis to overlay climate change vulnerabilities in the surface water system with opportunities for increasing resilience. Opportunities shall include planned capital projects from City departments, City facilities (e.g., stormwater facilities or parks facilities), future light rail stations, redevelopment areas, and operations and maintenance practices. In addition to identifying resilience-building opportunities, the consultant team shall identify areas that need site-specific evaluation.

The consultant team shall provide an initial **set of actions to build resiliency** to the City for input. The initial set of actions will be identified based on the consultant team's:

- ▶ Understanding of Shoreline’s unique context, challenges, and opportunities related to climate resilience in the City’s surface water system based on information collected in the kickoff meeting and workshops (Task 2).
- ▶ Knowledge of industry and peer community best practices, including Seattle and King County.
- ▶ Review of relevant policies, including Shoreline’s Surface Water Master Plan, other City plans and policies, and relevant documents reviewed in Tasks 2b and 3c.

The consultant team will use City feedback to further refine the set of actions into a shortlist of actions. The consultant team shall develop a **prioritization framework** to evaluate and rank actions using multi-criteria analysis. The consultant team shall work with the City project team to select the criteria that will be included in the analysis, such as:

- ▶ **Effectiveness and impact** based on projected climate change effects.
- ▶ **Cost**, including affordability and expenditure timeframe.
- ▶ **Realization of “co-benefits”** that build resilience in multiple sectors or provide other benefits.
- ▶ **Equity** in the distribution of benefits and consideration of disadvantaged populations.
- ▶ **Feasibility**, including degree of City control and technological and financial considerations.
- ▶ **Buy-in** from the relevant department(s) and support within the community.
- ▶ **Speed** with which impact can be achieved.
- ▶ **Urgency**, given windows of opportunity in planning and policymaking and the timing of climate impacts.
- ▶ **Criticality** of the element (e.g., infrastructure) to the functioning of the system.

Task 3b. Develop adaptive management framework

The consultant team shall create a dynamic, **mapping framework** for the City to adaptively manage the stormwater system, revisiting the strategy, objectives, vulnerabilities, and actions, into the future. The map shall include site-specific strategies, data used to evaluate vulnerability, and known opportunities for building climate resilience within the system. The City shall be able to update the map as climate predictions change, new data becomes available, or new opportunities are identified. The consultant team will design the mapping framework to be compatible with existing mapping systems in use by the City and based on information and input provided by City staff during the kickoff meeting; based on compatibility and feasibility, the framework may be designed as an online platform.

Once the consultant team has completed the draft framework, the City will coordinate up to five (5) project managers to test the draft framework and provide feedback on its usability. The consultant team will prepare a feedback form for the project managers to use. The City will be responsible for compiling the feedback in a single document and providing it to the consultant team. The consultant team will use the consolidated feedback to revise the framework and generate the final version.

Task 3c. Evaluate compatibility with existing plans

Cascadia shall lead a comprehensive review of existing City plans and efforts, including the City’s Climate Action Plan; Parks, Recreation, and Open Space (PROS) Plan; Transportation Master Plan; and report for Salmon-Safe certification. The review shall ensure the comprehensive set of strategies and measures are inherently compatible with existing plans. The specific areas of alignment between the resiliency strategy and other City plans shall be clearly communicated in the final report.

Task 3 Deliverables

- ▶ List of near-term actions (within the next six (6) years) to build resiliency
- ▶ Framework for prioritizing resilience strategies and adaptive management of surface water system (draft and final)
- ▶ Feedback form for testing adaptive management framework

Task 4. Public Meetings

Task 4a. Present to City Council

The consultant team shall prepare and deliver a presentation about the Study to City Council at the appropriate time during the Study process to best communicate findings from the Study and gain support for the resilience strategies. The consultant team shall determine the best date through discussion with the City project team. Cascadia's graphic design team shall develop a graphics-forward **slide deck** and notes for the presentation.

Task 4b. Workshops with cross-sector representatives

The consultant team shall design and facilitate **two workshops** during the course of the Study. The first workshop will be held with the advisory group to a) share the results of the climate impacts assessment and exposure analysis, and b) gather sector-specific information to inform the sensitivity and adaptive capacity analyses. The second workshop will be held after the vulnerability assessment is completed with the City project team and other staff involved in surface water system management (to be identified by the City) to collaboratively prioritize vulnerabilities relevant to the surface water system to guide the identification and development of resilience strategies and measures.

The consultant team shall provide guidance to the City for identifying workshop attendees. The City will be responsible for meeting logistics, including: coordinating scheduling, securing a location, and inviting and communicating with attendees.

Task 4 Deliverables

- ▶ Slide deck and presentation to City Council
- ▶ Workshop participant and facilitator agendas (draft and final) and summaries/workshop notes

Task 5. Report

Task 5a. Produce dynamic, public-facing report

The consultant team shall develop a **final report** that highlights important data and key messages in a clear, concise, and engaging format to resonate with the Shoreline community. The consultant team shall determine the report structure and format in collaboration with the City project team. At a minimum, it shall include the following principal elements:

- ▶ **Background and methodology**, describing the purpose, goals, and importance of this study and situating it in the broader context of the Shoreline community, as well as the process by which the vulnerabilities and resilience strategies were developed and prioritized.

- ▶ **Vulnerability assessment** that draws on up-to-date climate projections and geospatial data to clearly identify and prioritize vulnerabilities based on exposure, sensitivity, and adaptive capacity.
- ▶ **Resilience strategy**, summarizing tactics chosen to reduce the priority vulnerabilities and incorporate resiliency measures into future surface water system upgrades and other infrastructure and operations improvements.

Cascadia shall create narrative and graphic design materials for the City to create a webpage that will serve as a broadly accessible and dynamic portal to share updates as the City’s resilience efforts move forward. The consultant team shall also create an ArcGIS story map—an interactive webpage that uses maps and overlays to tell engaging and memorable stories—that will be linked to the webpage.

Task 5 Deliverables

- ▶ Final report materials for City webpage
- ▶ ArcGIS story map

Task 6. Project Management

Cascadia shall provide ongoing project management, including staffing, scheduling, monthly invoices with progress reports, check-in calls with the client, and subconsultant contract management.

Task 6 Deliverables

- ▶ Monthly invoices and progress reports
- ▶ Weekly check-in calls and emails

Definitions

“Built system” means infrastructure, buildings, and other elements that have been constructed. Examples include roadways, sidewalks, water and electricity delivery systems, and stormwater infrastructure.

“Natural system” means waterways and bodies of water, parks and open spaces, critical areas and ecosystems, and other elements of the natural environment.

“Social system” means sectors, services, programs, policies, organizations, and other elements that support human wellbeing and economic and political functions, such as human health, affordable housing, jobs, and equity and social justice.

“City’s project team” means the project manager and up to six (6) additional staff.

“Advisory group” means the City’s project team, as well as additional City staff and external stakeholders.

“Relative cost of taking action” means the anticipated level of labor, construction, supplies, programmatic, and other costs required to make a management, policy, operational, or infrastructural change to reduce vulnerability of a particular asset to climate impacts.