

Community Emergency Preparedness Fund

Extreme Heat Risk Mapping, Assessment, and Planning

2022 Application Form

Please complete and return the application form by **June 24, 2022**. All questions must be answered by typing directly in this form. If you have any questions, contact cepf@ubcm.ca or (250) 387-4470.

SECTION 1: Applicant Information	AP <i>(for administrative use only)</i>
Name of Local Government or First Nation: Capital Regional District (CRD)	Date of Application: June 24, 2022
Contact Person*: Nikki Elliott	Position: Manager, Climate Action Programs
Phone: 250-360-3048	E-mail: nellott@crd.bc.ca

* Contact person must be an authorized representative of the applicant.

SECTION 2: For <u>Regional Projects Only</u>
<p>1. Identification of Partnering Applicants. For all regional projects, please list all of the partnering eligible applicants included in this application. Refer to Section 2 in the <i>Program & Application Guide</i> for eligibility.</p> <p>Partnering Applicants will provide Council Resolutions and will participate on a Project Team providing oversight and project management in collaboration with the CRD. Project Supporters will participate in workshops and provide key data insights and feedback on the project.</p> <p>Partnering Applicants:</p> <ol style="list-style-type: none"> 1. City of Langford 2. District of Saanich 3. Town of Sidney 4. City of Victoria <p>Project Supporters:</p> <ol style="list-style-type: none"> 1. District of Central Saanich 2. City of Colwood 3. Township of Esquimalt 4. District of Highlands

- 5. District of Metchosin
- 6. District of North Saanich
- 7. District of Oak Bay
- 8. District of Sooke
- 9. Town of View Royal

Unincorporated Areas:

- 10. Juan De Fuca E.A.
- 11. Salt Spring Is. E.A.
- 12. Southern Gulf Is. E.A.
- 13. First Nations within the capital region

2. Rationale for Regional Projects. Please provide a rationale for submitting a regional application and describe how this approach will support cost-efficiencies in the total grant request and support a comprehensive, cooperative approach.

A regional approach in a region as diverse and jurisdictionally complex as the capital region will help prevent duplication of efforts between communities, reduce competition between communities for limited provincial funding, builds collective capacity, and provides a regionally consistent overview of heat vulnerability. A regional approach prevents the need for each local government to pursue their own data collection and mapping initiatives and will result in an end product that is consistent across the region. Utilizing the same methodology to define risk to extreme heat provides a comprehensive approach to understanding vulnerability in our communities, setting the foundation for collaborative, regional heat response planning.

Many communities have limited resources and capacity to undertake individual heat vulnerability mapping initiatives. The CRD, with support from the co-applicants and an intermunicipal Project Team, will provide project management and oversight on behalf of all local governments, thus streamlining all work and reducing financial and capacity limitations on individual entities.

This project builds upon and supports regional work specific to extreme heat already underway. Uniting efforts across sectors and taking an interdisciplinary, intermunicipal approach to understanding how extreme heat impacts the region now and in the future is the best path forward towards creating plans that will directly support those most vulnerable to heat events. This project extends beyond local governments and will involve cooperation among local health agencies, emergency management professionals, climate change specialists, and community organizations working with vulnerable populations on the ground.

Extreme heat was identified as a hazard of regional significance in 2018 as part of a Regional Hazard Risk and Vulnerability Assessment (HRVA) Project undertaken by the Regional Emergency Management Partnership (REMP). Since that time, REMP emergency programs across the capital region have worked together to identify risk reduction strategies. This project supports the capital region and its member municipalities implement the priorities identified in the Sendai Framework for Disaster Risk Reduction, specifically Priority #1, Understanding Disaster Risk in all of its dimensions. Three key ideas central to the Sendai Framework include: (1) A greater

effort to understand risk (in all its dimensions), to prioritize investment and make risk-informed decisions; (2) A shift away from managing disasters to managing risk, including reducing the underlying drivers of risk (exposure and vulnerability); and (3) A broader whole-of-society approach to risk.

The CRD and its co-applicants have discussed a regional application with WSANEC Nations, to ensure that the development of a Regional Heat Vulnerability Index is mutually supportive of WSANEC's UBCM-CEPF application. This approach will allow the Nation to request UBCM funding for the purpose of collecting local Indigenous knowledge, story collection, and story harvesting to supplement scientific data.

Pursuing this project as a region has a variety of cost efficiencies and economies of scale. If each municipality/electoral area were applying for this funding separately, the budget provided through this grant would not be sufficient to cover the scope that we're proposing. Hiring one consultant to do this work for the region will save costs in scoping this separately for each community. Project deliverables will be shared evenly across the region, and all grant funds will be dedicated to support the entire region rather than specific co-applicants.

We anticipate this data will serve multiple projects related to emergency response, resiliency and climate adaptation, forthcoming building retrofit programs, and regional local planning activities.

SECTION 3: Project Information

1. Name of the Project:

- a. Name of project: Capital Region Extreme Heat Vulnerability Mapping Dashboard Project
- b. Proposed start and end dates. Start: October 24, 2022 End: October 23, 2023

2. Project Cost & Grant Request:

- a. Total Project Cost: \$214,000.00
- b. Total Grant Request: \$150,000.00
- c. Have you applied for, or received, funding for this project from other sources. If yes, please indicate the source and the amount of funding received or applied for.

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3. Project Summary. Please provide a summary of your project in 150 words or less.

This project supports the integration of Extreme Heat Disaster Risk Reduction and Climate Adaptation Planning through the development of an Extreme Heat Vulnerability Mapping Dashboard that provides a highly localized picture of vulnerability to heat in the capital region. This project will collect local data and indicators to develop a heat vulnerability mapping index in order to better understand the locations of both populations and buildings that should be prioritized when planning to address future extreme heat events. This hazard index map will provide the basis for building risk awareness and setting priorities for implementation of Disaster Risk Reduction initiatives and risk communication. This data will then be used to develop an interactive extreme

heat vulnerability map (similar to that of Vancouver Coastal Health's Community Health and Climate Change Map), which can be built into a regional hazards dashboard to support education and planning efforts.

SECTION 4: Detailed Project Information

4. Proposed Activities.

- a. What specific activities will be undertaken as part of the proposed project? Refer to Section 6 of the *Program & Application Guide* for eligibility.

Q4 2022 - Phase 1 – Data Gap Analysis

The first phase will involve additional project scoping to identify desired local data that is not currently captured through Census Metropolitan Area data – examples include social vulnerability, equity and health indicators (as per Part 3 of the recent BC Coroner's report), specific morbidity and mortality data; additional building-level data such as air conditioning, building typology; updated air and surface temperature data; topography/land cover; key community assets to support heat intervention, and key climate projections data into the 2080s.

Census data is not available for some areas in the region, such as local First Nations. If there are data gaps for Nations, there will be efforts to try and collect that data on behalf of the Nations part of the development of a heat vulnerability index.

The project team will develop an RFP to procure a consultant to assist in project scoping and design the methodology to collect the additional data layers.

Q1 2023 - Phase 2 – Data Gathering & Validation

A consultant will be hired to support this and the following phases. Local data on heat-vulnerable populations and buildings will be gathered using a variety of methods, such as GIS analysis, health surveys, and on-the-ground surveying and discussions with community members. Census and BC Assessment data will be collated. Existing relationships will be leveraged by working with organizations in the community that are currently connected to populations that are vulnerable to the impacts of heat. In addition, workshops will be held with local governments, First Nations, Island Health, First Nations Health Authority, Pacific Climate Impacts Consortium and other key agencies to support data collection and validate data collection.

The Project Team will work with First Nations to acquire missing data.

Data then will be analysed and preliminary mapping products in GIS will be developed to identify extreme heat vulnerability across the capital region.

Q2 2023 - Phase 3 – Dashboard Development

It anticipated that this project will have two specific deliverables:

1. Once the localized data is collated into GIS form, a publicly available 'Regional Hazard Dashboard for Extreme Heat' will be developed. Collaboration with GeoBC and EMBC will determine the best approach to hosting this data, and there may be

an opportunity to leverage the forthcoming Capital Region Tsunami Information Portal and expand it to an 'All Hazards Dashboard.' The CRD will work with REMP, EMBC/GeoBC and local governments to determine the best approach as the project progresses.

2. Additional maps with localized data will be developed for and provided to each local government to use internally and can be customized to each community with the ability to add additional layers. This will inform risk response and climate adaptation planning at the local level.

Q3 2023 - Phase 4 –Workshop(s) & Dissemination

This phase will include the development of communications materials such as guidance materials to accompany the data release of the dashboard.

Also, the data collected through this project will be shared through a series of targeted regional workshops and presentations on learnings, use cases, and next step opportunities. This may also include broader social media posts to share the information broadly throughout the region.

Outputs of this project will directly support local governments, First Nations, Island Health and community agencies, in future risk assessments, extreme heat response planning, and climate adaptation planning activities.

- b. How will the project address the risks posed to heat-sensitive populations (including special consideration or response actions to support heat-vulnerable populations)?

More frequent and intense heat events pose a growing threat to human health and well-being. Vulnerability to heat varies over time and space, leaving certain groups at greater risk of both short- and long-term harm. This mapping project will provide the region with a hyper-local, geographically specific picture of heat vulnerability, which will inform where interventions are most needed and enables prioritization of planning. Chief Medical Officer Dr. Jatinder Baidwan recently said, "We have to do our utmost to ensure that we absolutely, actively eliminate as much risk as we can understand." Knowing who these populations are and where they are located supports response actions for heat-vulnerable populations. Analyzing the complexities that determine one's level of risk enables a deeper understanding of vulnerability for heat-sensitive and heat-vulnerable populations and is the first step in a comprehensive response to extreme heat in the region.

This project is focused on identifying where heat-vulnerable populations are located in the region and includes an analysis of heat-vulnerable buildings to develop a better sense of where future heat interventions should be targeted from a mitigation perspective. Heat-sensitive populations often have barriers to reducing their level of risk, and the data from this mapping tool will help the region meet people where they're at in terms of adapting their homes to a future climate.

This work will directly inform future regional and local government risk assessments, extreme heat response planning, and climate adaptation planning activities. It will also build upon existing data, methodologies, and work such as Vancouver Coastal Health's Climate Vulnerability Index, Université Laval's Extreme Heat Vulnerability Mapping Tool, Building Condition Assessments, the BC Coroner's report on Heat-Related Deaths in Summer 2021, which calls for greater

support for populations at risk, and current work being undertaken by health, emergency management, equity, and climate change practitioners.

- c. How will the proposed activities consider and adapt to the impacts of climate change in the project methodology and deliverables?

The Pacific Climate Impacts Consortium (PCIC) is a regional climate service centre at the University of Victoria that provides practical information and tools on the physical impacts of climate variability and change in support of long-term planning. The Project Team will work closely with PCIC to utilize and overlay relevant climate projections data within the mapping product, using emissions scenarios RCP 8.5 or SSP5_8.5 for return periods and extreme events with long return periods, and using scenarios until the end of the century (2080s).

In partnership with PCIC, the CRD developed a Climate Projections for the Capital Region Report in 2017, which includes regionally specific projections to the 2080s. The CRD has also participated in a variety of climate vulnerability and risk assessments in the region, with local governments such as Saanich, Esquimalt, Colwood, and Victoria, who have each completed their own climate risk assessments. Knowledge from these assessments will be utilized in this project, and staff that participated in their development will contribute knowledge to this project. The Project Team includes multiple climate adaptation specialists, and the deliverables of this project will directly inform the next steps needed to support regional and local climate adaptation efforts.

5. Proposed Outcomes & Deliverables.

- a. What are the specific proposed outcomes and/or deliverables for this project?

This project will result in a more coordinated, comprehensive understanding and approach to addressing extreme heat across the region. The two main deliverables are extreme heat vulnerability maps that use highly localized data to provide a detailed picture of vulnerability to heat in the region.

The first map is a publicly available 'Regional Hazard Dashboard for Extreme Heat'. Collaboration with GeoBC and EMBC will determine the best approach to hosting this data, and there may be an opportunity to leverage the forthcoming Capital Region Tsunami Information Portal and expand it to an 'All Hazards Dashboard.'

Additional maps will be developed for local governments within the capital region to use internally and can be customized to each community with the ability to add additional layers. This will inform extreme heat disaster risk reduction and climate adaptation planning in both the short and long-term at the local level. It will also inform future policy, planning, decision-making, and community engagement around extreme heat.

Communications materials such as guidance materials to accompany the data release of the dashboard, social media posts, and presentations will be developed to support the dissemination of project deliverables, as well as the opportunity to reflect on lessons learned for other communities interested in undertaking this work.

- b. How will the proposed activities increase understanding of the social, cultural, economic, and/or environmental impacts of extreme heat events to the community?

The data that will be collected and analyzed through this project addresses the social, cultural, economic and environmental factors that influence the level of vulnerability to extreme heat across the region. A regionally accessible database for all the indicators and data sources the region is looking to assemble isn't readily available, but is required to improve our understanding of community vulnerability to extreme heat.

Once this data has been assembled into an extreme heat vulnerability mapping product, this information will inform detailed risk assessments that would specifically evaluate the level of risk that various social, cultural, economic and environmental impacts have on the community.

The data that is currently available to build upon includes the following indicators from the CMA:

Proportion of dwellings rented

Incidence of low income based on the after-tax low income measure

Proportion of elderly (≥ 65 years old) and children (≤ 4 years old)

Proportion of residences with 5 floors or more

Proportion of people living alone

Proportion of people not knowing an official language

Proportion of dwellings in need of major repairs

Proportion of recent immigrants

Proportion of dwellings built before 1980

Proportion of people with no diploma, certificate or degree

Proportion of renters spending 30% or more of household income on housing

Proportion of single-parent families

Additional data that is either readily available or will be collected through this project involves indicators such as social vulnerability, equity and health indicators (as per part 3 of the recent BC Coroner's report), specific morbidity and mortality data; additional building-level data such as air conditioning and building typology; updated air and surface temperature data; tree canopy, future topography/land cover; key community assets to support heat intervention, and climate projections into the 2080s.

- c. How will the proposed activities identify or achieve co-benefits (e.g. reducing greenhouse gas emissions, improving community health and wellbeing, enhancing biodiversity, etc.)?

The data collection, mapping and dashboard outputs will be useable in a number of applications such as to inform forthcoming regional building retrofit programs. Equity and social health indicators will support future equity, health and well-being analysis, regional and local planning efforts, and community programs. Further, base mapping layers would support future hazard analysis such as flooding, air quality, and wildfire impacts.

The region's forthcoming Regional Energy Retrofit Support Service will utilize this data to provide enhanced support, income-based incentives, tailored messaging for different groups, and targeted outreach to ensure an equitable approach to sharing information about retrofit opportunities that include cooling interventions. Heat-sensitive populations often have barriers to reducing their level of risk, and the data from this mapping tool will help the region meet people where they're at in terms of adapting their homes to a future climate.

Understanding where heat-vulnerable populations are located across the region will inform tailored communications strategies, which can create significant improvements to community health and well-being if opportunities for heat interventions and wellness checks are identified and planned for ahead of a heat event.

6. Transferability. Describe the extent to which the proposed project may be transferable to other local governments and/or First Nations.

All outputs of this project will be shared with local governments and First Nations. The methodology and lessons learned from the project will be documented and can be shared with local governments outside of our region. As a specific deliverable of the project, a guidance document will be developed and shared broadly. Mapping products will be customizable for local governments so that anyone interested in participating is able to create a highly localized and specific mapping tool for their community.

The hazard index is one tool to support planning – as the project progresses – individual data sets that will be used to develop the index will be released to communities as they become available, allowing communities to concurrently undertake local risk assessments and planning.

The CRD and Project Team will work with experts in other jurisdictions (i.e. Metro Vancouver, Vancouver Coastal Health, BCCDC, City of Vancouver) to understand best practices in developing the methodology and deliverables, and share these learnings with others looking to undertake similar efforts in their region.

7. Partnerships. In addition to Question 1, if applicable, identify any partners (e.g., equity organizations, agricultural sector, critical infrastructure owners) you will collaborate with on the proposed project and specifically outline how you intend to work together.

All 13 local government and 3 electoral areas within the Capital Regional District are partners of this project. An interdisciplinary, intermunicipal project team will be established to guide development of the project and oversee its execution. Local governments will also participate in the process to provide key data inputs. The existing CRD's Local Government Emergency Programs Advisory Committee and CRD Climate Action Inter-Municipal Working Group which already consists of membership of the local governments will be utilized to undertake this work, as well as sharing the deliverables across their networks.

The region's First Nations will be invited to participate but due to the tight timeline of grant they couldn't be adequately consulted in time. The CRD will work with their First Nations Relations division to support this effort.

The Regional Emergency Management Partnership (REMP) is a 50-50 partnership between the BC Government and the Capital Regional District (on behalf of the 13

municipalities + 3 electoral areas). REMP offers the capacity to fill regional gaps, and provide the project management and backbone support to lead and coordinate complex emergency management planning projects that require multi-agency cooperation, coordination and collaboration. This project supports the REMP 2023 draft business plan which aims to implement a regionally adapted Heat Alert Response Guidelines, supporting the implementation of evidence informed interventions by providing foundational data.

Further the Project Team will work with Island Health and First Nations Health Authority to define and confirm local health and vulnerability data, community service organizations - such as the Volunteer Victoria network, Community Social Planning Council - to support local data collection.

Finally, CRD will work with the Pacific Climate Impacts Consortium to gather pertinent climate projects data for this project.

8. Innovation. Describe how this project will be innovative.

The project is innovative in that it will utilize interdisciplinary, intermunicipal representation from professionals in emergency management, climate, planning, health, GIS, equity, diversity and inclusion in the development and execution of this project. Further, community service organizations will be able to provide additional insights that will inform the project. This will provide a strong holistic perspective in the project's development and execution.

Further, this project aims to cross jurisdictional boundaries to develop a deliverable that will be usable for a variety of agencies, beyond local governments.

A growing body of social science research demonstrates that knowledge alone is insufficient to prompt action. Therefore it is important that any future community outreach and engagement apply evidence-informed best practices into risk communication. Access to adequate information, mapping, resources and technological support was identified as key to supporting risk-informed plans and communicating risk to residents by REMP in 2020 within the Regional HRVA Report.

Finally, this project intends to collect building-level data to further understand extreme heat vulnerability. This is an innovative approach to projects such as this, and will provide key insight for future building policies and retrofit programs.

9. Additional Information. Please share any other information you think may help support your submission.

CRD is the primary applicant and has a history of managing interdisciplinary, intermunicipal projects working with diverse community, academic, and local government representatives to support community resiliency efforts. An example is the recent Capital Regional Coastal Flood and Inundation Mapping Project www.crd.bc.ca/coastalflood.

It is anticipated that this work will be foundational and support future collaborative efforts amongst local governments, emergency management agencies, community groups and First Nations.

Finally, the CRD and Project Team have made key connections with external institutions, agencies and local governments that have undertaken previous works in

other jurisdictions or have access to data and indicators for the region that we will continue to leverage.

SECTION 5: Required Application Materials

Only complete applications will be considered for funding. The following separate attachments are required to be submitted as part of the application:

- Local government Council or Board resolution, Band Council resolution, or Treaty First Nation resolution, indicating support for the current proposed activities and willingness to provide overall grant management.
- Detailed budget for each component identified in the application. This must clearly identify the CEPF funding request, applicant contribution, and/or other grant funding.
- For regional projects only: Local government Council or Board resolution, Band Council resolution, or Treaty First Nation resolution from each partnering applicant that clearly states their approval for the primary applicant to apply for, receive, and manage the grant funding on their behalf.

Approved applicants are required to grant the Province of British Columbia free and clear access and distribution rights, specifically a perpetual, royalty-free, non-exclusive, worldwide license to use, reproduce, modify, and distribute, any and all of the spatial data products acquired/produced using CEPF funding.

SECTION 6: Signature. Applications are required to be signed by an authorized representative of the applicant. Please note all application materials will be shared with the Province of BC.

I certify that: (1) to the best of my knowledge, all information is accurate and (2) the area covered by the proposed project is within our local authority's jurisdiction (or appropriate approvals are in place).

Name: Larisa Hutcheson

Title: General Manager, Parks & Environmental Services

Signature: 

Date: June 24, 2022

A certified electronic or original signature is required.

Submit applications to Local Government Program Services, Union of BC Municipalities
E-mail: cepf@ubcm.ca