

# Royal Roads University Climate Risk Assessment

## Summary Engagement Report

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# 1. Background

Our climate is changing and impacting the Royal Roads University (RRU) community, both on and off campus. More frequent and intense heat events, stronger storms and rising sea levels, greater risk of wildfires and widespread wildfire smoke are just some of the impacts of climate change we are already experiencing.

From January – December 2024, the university is undertaking a [climate risk assessment](#)<sup>1</sup> to better understand the impacts of climate-related events and effectively safeguard the health and well-being of students, staff, faculty, visitors and the broader community. The project will also create a resilience roadmap to protect and better maintain the university's built, cultural and natural assets. The assessment is a critical precursor to future adaptation efforts by the university and is a priority identified in the [Climate Action Plan 2022-2027](#).

## 2. Engagement Overview

Engagement in the climate risk assessment invited perspectives, knowledge and lived experiences of diverse RRU interest holders. The objectives of engagement were to:

- a) Invite feedback on the physical, ecological, social, and economic impact of climate hazards on RRU ecosystems, the health and well-being of the community, culture, services, and facilities;
- b) Understand and include personal experiences, observations, and anecdotal evidence of climate risk and opportunities for resilience, particularly from populations most at risk of the impacts of climate change;
- c) Explore RRU strengths, assets, and capacities as well as vulnerabilities and areas of improvement to manage climate risks and enhance resilience;
- d) Build RRU community knowledge, familiarity, and collective capacity for addressing climate change risks and adaptation actions; and
- e) Foster a collaborative environment for engagement and exchanging of ideas among diverse interest holders.

The following engagement methods were facilitated by SHIFT Collaborative between June and November 2024:

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<sup>1</sup> This climate risk assessment is specifically focused on the Colwood campus; however, many of these themes and impacts will also be relevant to the Langford and Salt Spring Island campuses, once operational.



Figure 1. RRU Climate Risk Assessment Engagement Methods

Table 1. Description of RRU Climate Risk Assessment Engagement Methods

Method	Description	Invited Participants
Survey	The survey collected input from interest holders on their perceptions, experiences, concerns, and priorities related to various climate hazards and their impact on RRU ecosystems, populations, services, and facilities.  249 people completed the survey.	Students, faculty, staff, alumni, and community partners (local governments, First Nations and community organizations)
Virtual Workshop	A two-hour virtual workshop was held on June 26 <sup>th</sup> , 2024. The workshop included a mix of presentations from the project team, live polling, a Mural board and facilitated small break-out group discussions.  35 people attended the workshop.	Students, faculty, staff
Focus Groups	In July 2024 5 x 60-90 min. focus groups were hosted with specific groups to explore themes in more detail: <ul style="list-style-type: none"> <li>• Students (8 participants)</li> <li>• Indigenous students, scholars and staff (4 participants)</li> <li>• Faculty, associate faculty and academic program staff (7 participants)</li> <li>• RRU staff—Operations, Administrative Services, and Communications &amp; Advancement (including People and Culture, finance, IT, etc.) (9 participants)</li> </ul>	Students, faculty, staff



	<ul style="list-style-type: none"> <li>RRU grounds and maintenance staff (11 participants)</li> </ul>	
In-Person Workshop	A 2-hr workshop in November 2024 will be open to all campus community members to present a draft climate risk assessment and invite feedback on the resilience roadmap.	Students, faculty, staff

## 2.1 Participant Overview

In total 296 people participated in the RRU risk assessment from the following groups:

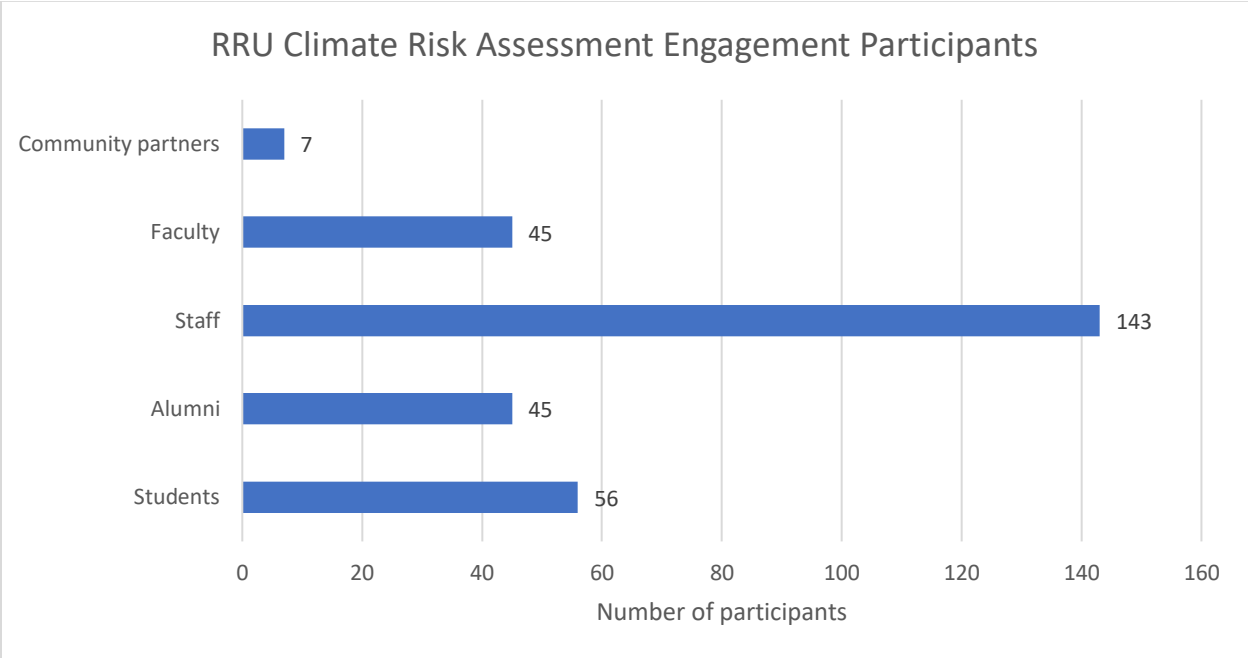


Figure 2. RRU climate risk assessment engagement participants

Participants in the engagement worked or studied both on-campus and remotely.

## 3. Summary of Themes

### 3.1 Hazard-Specific Findings

#### Extreme Heat

Extreme heat is a significant concern for the RRU community. Survey respondents indicated that extreme heat events on campus would have a **moderate to significant** impact on:

- Indoor comfort (difficulty studying, working or sleeping due to extreme heat): 74%
- Impacts on mobility/active transportation (biking or walking to learning and working spaces) and outdoor recreation: 74%

- Impacts on physical health: 63%

Many campus buildings, such as the Nixon and Sherman Jen buildings, lack air conditioning, leading to extreme indoor temperatures during heatwaves. Physical discomfort from heat was a significant theme in engagement. Participants highlighted how extreme heat specifically affects comfort during work or learning on campus:

- **Extreme Heat in Classrooms:** Many respondents noted that classrooms become unbearably hot during extreme heat events, making it difficult to concentrate and participate in academic activities. This discomfort is exacerbated in rooms without air conditioning, particularly during the afternoons when temperatures peak.
- **Office and Work Conditions:** Staff and faculty expressed concerns about the extreme heat in offices which lack air conditioning. The heat makes it challenging to work efficiently, leading some to consider working from home (if this is an option) or changing their work schedules to avoid the hottest parts of the day. Custodial staff also expressed concerns about working in buildings that lack air conditioning, especially since their shift work often coincides with the hottest indoor air temperatures (e.g. between 4-6PM). Inadequate cooling systems in buildings have resulted in staff indicating that they missed work due to heat-related illnesses.
- **Unreliable Air Conditioning:** There were reports of unreliable air conditioning systems in some buildings, with instances of air conditioning (AC) units breaking down during critical times, such as the 2021 heat dome. For some, the lack of personal control over office temperatures adds to the discomfort.

Extreme heat has also impacted:

- **Mobility and transportation:** Extreme heat affects the ability of students, faculty and staff to commute to campus, particularly for those who cycle or need to walk long distances to campus or transit stops. Concerns about heatstroke and discomfort during the commute to campus were highlighted.
- **Reduced In-Person Engagement:** Extreme heat discourages participation in on-campus activities, with some respondents indicating they would avoid coming to campus unless there are adequate cooling facilities available. This reduction in attendance impacts social cohesion and access to in-person services, such as research support.
- **Access to outdoor research opportunities:** Faculty and students reported discomfort due to extreme heat and lack of shade when participating in outdoor research or learning opportunities on campus.

Given RRU has many distance learners and remote faculty and staff, extreme heat events in other regions can also impact the campus community. Engagement participants discussed how extreme heat events impact their daily lives and living conditions:

- **Lack of Air Conditioning at Home:** Many respondents, particularly students, noted that their homes lack adequate air conditioning, leading to significant discomfort during extreme heat events. This lack of cooling significantly impacts their ability to sleep, concentrate, and study. If

office or classroom conditions are too hot, working or studying from home during heat events is not an option for some, particularly if their home environment lacks adequate cooling.

- **Disrupted Daily Routines:** Participants commented that the need to adapt daily routines to cope with the heat, such as changing work hours or finding cooler places to work, disrupts their normal work-life balance, leading to increased stress and decreased productivity.

Participants expressed grief over the potential loss of natural spaces and the **strain on ecosystems** due to extreme heat. This includes concerns about the health of forests, soil, and marine ecosystems, which are critical to the campus environment and biodiversity. Some also described the way extreme heat is impacting cultural practices on campus:

*“[Extreme heat] will have a significant impact on our ability to grow, fish, or wild harvest nutritious food.”* Survey Respondent

Overall, there is a need for **designated cooling areas on campus** where students, faculty and staff can find relief during extreme heat. The survey and focus group feedback indicated that existing measures are inadequate. There is also a need for clear communication about available resources and policies during extreme heat events. This includes information on cooling areas, changes in building operations and work schedules, and guidance on how to manage work (both indoor and outdoor) during these periods.

### Drought and Water Shortage

Many participants were concerned about the impacts of a severe drought on campus. Survey respondents indicated that a severe drought on campus would have **moderate to significant impact** on:

- Increased food costs, affecting personal food security: 86%
- The availability of safe drinking water: 85%

Some respondents noted that a drought would have minimal direct impact on their work, particularly if they were not based on campus or if their roles were not water-dependent.

85% of staff respondents in the survey indicated that severe drought would have a **moderate to significant impact** on RRU **ecosystems, biodiversity, lands and waters** (including traditional plants and animals). Concerns raised in relation to drought impacts on campus ecosystems included:

- **Water-stressed Ecosystems:** About two-thirds of survey respondents were concerned about loss or change in species on campus due to drought and water restrictions. Participants expressed deep concern over the potential loss of trees and plants on campus due to drought.
- **Tree Health Decline:** There is a noticeable decline in native tree species, such as Western red cedars and bigleaf maples, due to changing climate conditions. This decline poses risks not only to the ecological balance but also to the safety of the campus environment. The university is considering transitioning to more drought-resistant species, such as those more native to Mediterranean climates, to cope with the decreasing water availability.
- **Fire Risk in Forested Areas:** The increased risk of forest fires due to dry conditions was a major concern. Drought conditions could necessitate restricting access to forested areas to prevent potential fire hazards.

There are also significant concerns about the impact of drought on **water supply** to the campus, including:

- **Potable Water Supply:** The availability of potable drinking water was a critical concern, particularly if compounded by extreme heat. In addition, the potential impact on events and catering services, which require significant amounts of potable water, was highlighted, including cascading impacts on event revenue. In addition, a severe drought could lead to the closure of facilities like the cafeteria and impact the ability to host large gatherings.
- **Hygiene and Sanitation:** The potential for drought-induced water shortages could impact hygiene facilities, such as sinks and toilets, with concerns about maintaining basic sanitation during a drought.
- **Water Management:** Drought conditions have forced changes in water usage and conservation strategies, including reducing irrigation and changing practices to conserve water. This has impacted the maintenance of campus gardens and grounds.
- **Water Availability for Lawns and Gardens:** Some felt that the campus community and the public aren't clear about the source of water for landscaping, lawns and gardens at RRU and questions about the appropriateness of maintaining "green lawns" during drought conditions.
- **Compounding Drought Impacts and Energy Resilience:** Much of B.C.'s energy grid relies on consistent water flow for hydroelectric generation. Prolonged drought conditions across key regions could lead to reduced power generation capacity, stressing the energy grid and potentially causing energy shortages.

*"Stop watering the lawns and let them revert to grasslands or drought-tolerant meadows. The green lawn in front of the castle is sending all the wrong messages."* Survey Respondent

*"RRU is fortunate to have access to groundwater for watering grounds."* Focus Group Participant

*"If there is a severe drought in the CRD region, there could also be severe drought on the mainland. Given BC's reliance on hydroelectricity, a long and extreme province-wide drought could potentially impact the grid..."* Survey Respondent

Overall, participants identified the need for emergency planning that addresses potential water scarcity due to drought, including identifying alternative water sources and implementing water conservation measures.

## Interface Wildfire

Significant concerns related to an interface wildfire affecting the RRU campus include impacts to ecosystems, destruction of buildings and infrastructure, blocking of transportation routes to/from campus, power/server outages and temporary disruption to on campus and online learning due to wildfire, and delays in supply of critical goods and services due to wildfire-related disruption of transportation routes.



Many participants voiced concerns about the potential **evacuation of the campus** if a wildfire were to occur on or near the campus, particularly for students who live on campus for a residency and the 'duty of care' of the university to ensure they are evacuated safely.

*"I live not far from work. I worry about supporting the evacuation of students while having to evacuate myself."* Focus Group Participant

*"If a fire requires evacuation this will have a large impact on teaching/research."* Survey Respondent

Participants noted that wildfire response requires partnerships with municipalities (e.g. Colwood) and wildfire prevention is critical given the increased risk due to dry conditions of campus forests and ecosystems.

*"[Interface wildfire] is a major risk for RRU given the campus lands (as well as cedar die-off and the spread of combustible invasive species like Scotch broom). A FireSmart assessment and implementation of recommended clearing and other measures (fire breaks, Indigenous burning practices of grasslands) to prepare for this is desperately needed."* Survey Respondent

Several participants who live, learn or work in other parts of British Columbia (B.C.) or Canada shared stories about how wildfires impacting their community have had significant impacts on mental health and well-being, and at times requiring leave from studying or work to deal with wildfire-induced emergencies in their home communities (see section 3.2 for more details).

### Poor Air Quality (including Wildfire Smoke)

Survey respondents indicated that poor air quality (including wildfire smoke) affecting the campus would have **moderate to significant** impact on:

- Physical health (e.g. respiratory conditions): 87%
- Mobility or recreation (Impacts on opportunities for outdoor recreation or transportation): 84%
- Impacts on mental health (e.g. anxiety, fear, depression): 80%

Poor air quality due to wildfire smoke exacerbates respiratory conditions for some, requiring them to work from home or wear protective gear like N95 masks. However, working from home isn't always viable for everyone. Overall, the health and safety concerns from wildfire smoke are significant, especially for those with existing respiratory or cardiovascular conditions, for outdoor workers, and for those that cycle or walk to campus.

Staff participants indicated they experienced **significant health impacts**, such as headaches and difficulty breathing, during periods of thick wildfire smoke. 59% of staff survey respondents indicated that significant impacts would be felt by the loss of productivity of RRU maintenance/grounds staff and crews working outdoors during a poor air quality event. This issue has raised concerns about the safety and feasibility of working outdoors under such conditions, with some staff having to consider not coming to work due to health risks.

*"For staff working outside, having safety measures around air quality and heat could be a priority if they don't already exist."* Survey Respondent

Other campus impacts mentioned due to poor air quality included loss of revenue from cancelled outdoor events due to wildfire smoke.

Many recommended updated high quality air filtration systems for campus buildings to mitigate more frequent poor air quality advisories due to wildfire smoke.

## Coastal and Stormwater Flooding

Survey respondents indicated that a coastal or rainstorm flood affecting the campus would have **moderate or significant** impacts on:

- Mobility or recreation (Impacts on opportunities for outdoor recreation or transportation): 87.0%
- Health (Potential injury from falling or flying debris, reduced safety on campus during extreme winds and storms, and/or health risks due to water contamination): 86.4%
- Health (Impacts on mental health e.g. anxiety, fear, depression): 71.7%

Students, faculty or staff that commute to campus indicated that if roads or highways were closed due to a flood (e.g., the Malahat Highway closure during the 2021 atmospheric river flooding event) they would not be able to get home and would therefore need to shelter in place.

Many participants spoke about the long-term effects of a significant flood event, including infrastructure damage that would require eventual repair, flooded homes and the cost and time to rebuild, and the impact on water and waste management. Some noted that their ability to work would be limited as most of their energy would be spent taking care of their homes/property and families.

More than half of staff surveyed felt that flooding could have significant impacts on ecosystems, natural spaces (e.g. gardens), buildings, infrastructure and campus services. For example:

- Coastal flooding can cause erosion and damage to natural habitats and gardens or changes to stream and creek flow (e.g. the ‘wear and tear’ on the creek by Charlie’s Trail due to extreme precipitation was named specifically);
- Regional or local flooding can cause impediments to campus access; and
- Campus buildings can experience flooding, leaking, and damage to foundational structures.

One focus group participant shared:

*“Increase in rainfall increases water volume in rivers, increasing water current and pressure, impacting the forested ecosystem. As the water increases, volume and currents increase, having more wear and tear on the riverbanks. This can alter the existing ecosystems or even wear down the banks affecting the walking/hiking trails.”* Focus Group Participant

Certain buildings, like the Grant and Cedar buildings, have experienced flooding during extreme weather. Extreme precipitation poses a challenge to the campus's older infrastructure and stormwater management.

One survey participant spoke about the compounding risk and impacts of a flood when other hazards have already increased the vulnerability of built and natural systems:

*“If a storm was combined with a season of drought or previous fires, forest systems would be very fragile. Dry summers bring weak and brittle trees which break and damage power lines in storms... So it’s not about a single event, but multiple factors over time increasing risk.”* Survey Respondent

Flood mitigation strategies named included shoreline development restrictions, the promotion of more porous surfaces and more vegetation to lower the run-off coefficient.

## Other Hazards

Two other hazards were discussed frequently in engagement:

- **Extreme Cold, Snow and Ice:** Participants were concerned about the lack of preparedness of the Greater Victoria region to respond to extreme cold and increasing incidents of heavy snowfall or ice. Some stated that international students coming to Victoria for residencies at RRU are unaware or ill-equipped for cold weather. In addition, snow and ice storms can cause power outages, damage trees and infrastructure, and disrupt transportation. They are extremely disruptive for RRU grounds and maintenance staff, requiring them to shift their focus entirely to snow removal and maintaining safety on campus, often at the expense of other duties. This includes working in hazardous conditions, such as clearing snow and ice while navigating dangerous driving conditions to get to work.

*“We already shutdown [the campus] for relatively small amounts of snowfall - what if there were more [snowfall events] that stayed around longer?”* Survey Respondent

- **Storms and Wind:** High winds and storms have resulted in damage to trees and infrastructure, requiring significant cleanup efforts and creating ongoing safety hazards for those on campus. Staff have noted the increasing number of stressed trees and the associated risks, such as falling branches during windstorms. Several participants spoke about safety concerns while walking, cycling or driving on campus during windstorms. Staff indicated the forest is not safe during wind events, and there is a need to warn the campus community and visitors about risks.

*“Extreme wind is one that I have been nervous about. When I have been teaching in the Sherman Jen building on windy days, I’ve been nervous driving the backroad down to the building as I’ve seen some pretty big branches come down and worry they’ll land on me while driving. However, wind typically isn’t a reason to cancel class (like snow, etc.).”*  
Survey Respondent

## Ranking Climate Hazards

Survey participants were asked to rank the climate hazards they thought could have the most significant impacts on the RRU campus community (ecosystem, population health and well-being, infrastructure, and services). By far, respondents felt the most significant hazard would be a **wildfire on or near the campus** (64% indicated this was the most important), followed by extreme heat and then a coastal or rainstorm event (Figure 3).

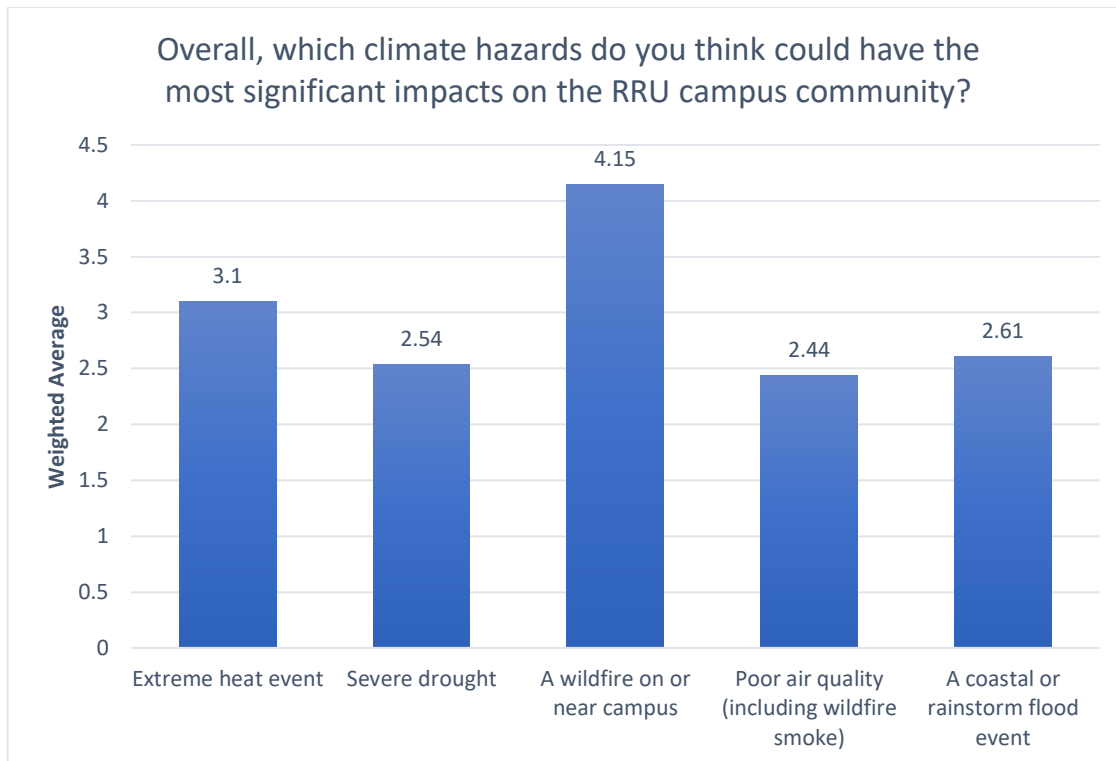


Figure 3. Ranked hazards by level of perceived impact on RRU (survey responses)

## 3.2 Health & Wellness

Throughout the engagement, the impacts of climate-related events on the physical health and wellness of the campus community were a significant theme, particularly respiratory impacts from wildfire smoke and extreme discomfort and concerns about heat exhaustion and heat stroke during extreme heat events (see previous sections on extreme heat and poor air quality).

**Mental health impacts** were also consistently named as a significant concern.

- Climate-related stress and trauma:** For campus community members who have directly experienced climate-related disaster events, such as wildfire evacuations or damaged homes due to flooding, there are long-term and lingering mental health impacts such as stress, anxiety and trauma. Participants described resulting financial strain, caregiving responsibilities, and social isolation from these events exacerbating mental health impacts.
- Eco-Anxiety:** Heightened climate anxiety or “ecoanxiety”—emotional and psychological distress in response to environmental concerns and the escalating threats posed by climate change—was a common theme. Participants reported deep worry and anxiety about extreme weather events and climate change, affecting their ability to focus and be productive. Many expressed feelings of dread, helplessness, and frustration, particularly when witnessing the impacts on communities and natural habitats they care about.
- Continuous Pressure:** Participants indicated that the lack of respite between successive climate impacts builds continuous pressure on individuals, making it challenging to maintain productivity and well-being. Some expressed a sense of ongoing strain and fatigue from dealing with repeated climate-related disruptions creating a sense of perpetual crisis.

- **Mental Health Impacts on Learning:** Faculty have observed an increase in mental health challenges for the student population, possibly linked to climate anxiety. The emotional toll of discussing climate change in classes has become more pronounced, contributing to student stress and anxiety. Some students, faculty and staff reported that learning about climate issues can be overwhelming, leading some individuals to avoid engaging with the topic to protect their mental health.
- **Social Cohesion:** There is a concern that the cancellation of in-person residencies and activities due to climate-related events can hinder the formation of close connections within educational programs. Participants expressed concern about the impact of reduced social interaction on mental health, community cohesion and collaboration. Building personal and community resilience through community is essential for coping with climate impacts. Participants emphasized the value of collective action and mutual support from their peers.

Overall, participants indicated there is a need for the university to provide:

- **Enhanced Eco-Anxiety Support:** There is a strong need for regular, structured mental health support focused on climate anxiety, integrated into campus counselling services to help manage the emotional impact of climate events.
- **Mental Health and Leave of Absence:** There is a need for enhanced mental health resources and accessibility accommodations, especially for those directly affected by climate events. The university has processes in place for staff, faculty and students to request leaves of absence due to emergencies, although the application of these policies can vary. Students indicated there is a need to revisit these procedures and policies to ensure they are accessible and adequate given the long-lasting mental health impacts of wildfire or flood events (for example).

### 3.3 Equity and Population-Specific Impacts

While we are all impacted by a changing climate, we are not all affected equally. Participants highlighted how different populations within the RRU community uniquely experience climate impacts.

- **People Living in Exposed Communities:** Some students, faculty and staff live in parts of Canada or the world that are significantly more at risk of wildfires, flooding and extreme heat events. Participants noted that students in the same program may experience climate impacts in dramatically different ways.
- **People with Health Conditions:** Individuals with pre-existing health conditions, such as respiratory or cardiovascular issues, are more vulnerable to the impacts of poor air quality and extreme temperatures, leading to increased health risks during climate events.
- **Students and Newcomers:** Students and newcomers, particularly those in housing without adequate cooling or air filtration face difficulties during extreme heat and poor air quality events. International students may be unaware of local climate risks, or experience challenges with climatic adjustments, necessitating targeted communication and support.

- **Economic and Social Disparities:** Lower-income individuals, those relying on public transportation, and those without stable housing or financial security are disproportionately affected during severe weather, with increased costs for adaptation and daily necessities.
- **Accessibility Challenges:** Students with mobility challenges are disproportionately affected during severe weather events, with added barriers to getting around the campus safely (e.g. during heavy precipitation, wind, snow, ice or extreme heat events).
- **Caregivers:** Climate events exacerbate challenges for caregivers, impacting their ability to balance responsibilities, especially during extreme heat events and when daycare facilities close. Focus on the safety and well-being of elderly, young and vulnerable family members during climate events, necessitates additional caregiving time.
- **Remote Work and Relocation:** Disparities exist between those who can work remotely or relocate during extreme heat or poor air-quality events and those who cannot, impacting how different members of the campus community experience climate events.

Overall, participants highlighted that climate adaptation plans must incorporate diverse cultural perspectives and address the specific needs of groups with unique risks, such as international students, newcomers, low-income individuals and those with health and accessibility challenges.

## Indigenous Peoples

Indigenous Peoples connected to the university are also uniquely impacted by climate change.

- **Impact on Home Communities:** Many rural and remote First Nations communities are particularly susceptible to flooding and wildfires, and to evacuations from home territories—a result of colonial historical placement of reserve lands and environmental racism. Often, Indigenous students, faculty and staff are needed to support elders and families in home communities during these events, helping them to evacuate, relocate, and recover.
- **Mental, Cultural, and Financial Impacts:** Participants shared mental health and cultural impacts from climate events impacting their families, communities and territories. In addition, participants described how Indigenous students and families often bear significant financial burdens during disaster events requiring evacuations, such as paying for hotels and basic necessities.
- **Systemic Racism:** Some participants shared a perception of systemic racism in how Indigenous students, faculty and staff and their needs are perceived and addressed by the university, particularly during crises (e.g. deficit-based stereotypes, "always in crisis"). This includes a lack of understanding and support for the broader caregiving responsibilities that Indigenous students, faculty and staff may have, extending beyond their immediate families to their communities.

Indigenous participants also discussed the following specific considerations for RRU related to climate change and Indigenous knowledge, representation, support for the Indigenous campus community, and the university's role in systemic change.

- **Support Systems and Policies:** Feedback indicates that the current support systems for Indigenous students, faculty and staff at Royal Roads, such as emergency bursaries and leave policies, are inadequate and not well publicized. There is a call for the university to develop



specific policies that acknowledge and support Indigenous students' unique challenges, including climate-related emergencies.

- **Lack of Indigenous Representation and Support:** There is a critical need for more Indigenous representation in faculty roles, particularly in programs related to environmental studies and climate change.
- **Respect for Indigenous Knowledge Systems:** Participants stressed the importance of respecting Indigenous knowledge systems as integral to climate adaptation and resilience on campus, but at the same time being wary of taking a ‘utilitarian approach’ that sees Indigenous knowledge as a “means to an end”. Participants highlighted the need for more Indigenous control over how Indigenous knowledge is represented in the curriculum and in policy related to climate change.
- **Inclusive Governance and Partnerships:** Strengthening relationships with local Indigenous communities and integrating their perspectives into decision-making processes is critical for effective climate resilience.

### 3.4 Research and Learning

Survey respondents indicated that climate-related events have had varying levels of impact on research and learning opportunities. Nearly half of respondents (45%) felt that climate-related events have moderately or significantly impacted student/faculty access to the campus, and 39% felt that student/faculty access to research and learning opportunities (e.g. internships, fieldwork, conferences) have been moderately or significantly impacted by climate-related events (see Figure 4).

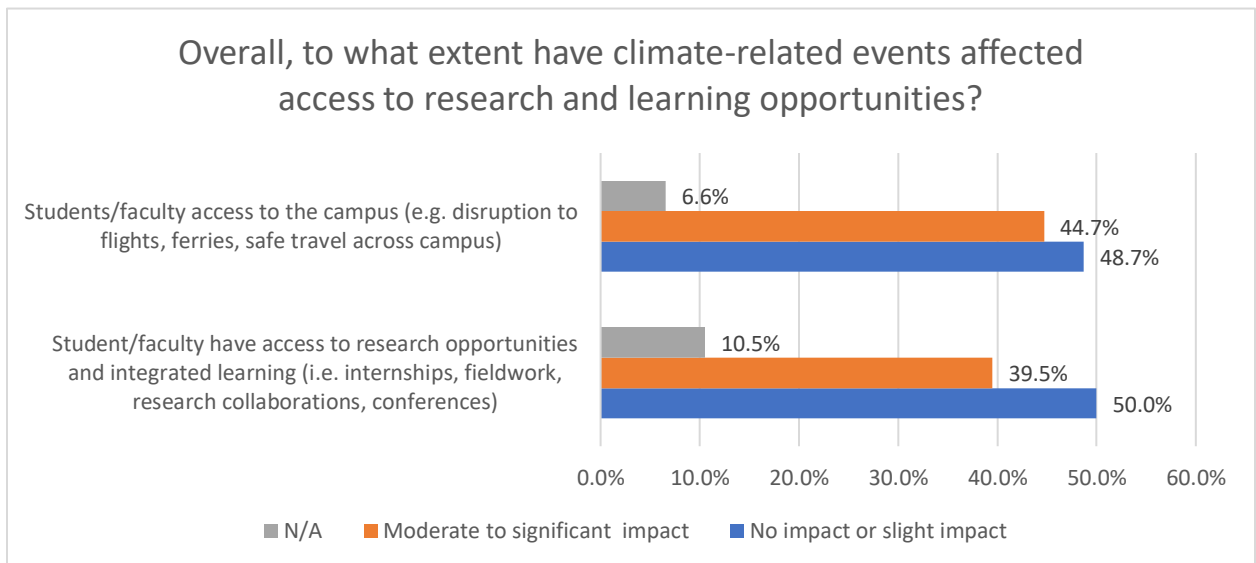


Figure 4. Impact of climate-related events on research and learning opportunities

Specific impacts described include:

- **Disruptions to Learning and Research:** Smoke and heat have disrupted outdoor research/learning activities and affected the health of the campus ecosystem, such as trees and soil conditions. Faculty

noted significant disruptions due to heat, with students becoming disengaged and seeking shade during outdoor learning activities. Snowfall and icy conditions have also disrupted on-campus residency programs, requiring quick shifts to hybrid models.

- **Cancellation of In-Person Residences:** Faculty and staff expressed concerns about the potential for climate-related events to cancel residencies, a critical component of the RRU learning model. They indicated the need for alternative plans and strategies to maintain program quality and meet student expectations during such disruptions.
- **Low Carbon Scholarship:** There is a growing recognition of the need to reduce air travel and encourage remote work as part of the university's commitment to sustainability. However, the shift away from business travel presents challenges, particularly for early-career academics who may find it difficult to advance their careers without attending in-person conferences and networking opportunities. While established scholars might more easily commit to reducing travel, the impact on professional development for those just starting out highlights a tension between sustainability goals and career progression.

*"I've largely stopped flying for work/conferences and this has impacted my career. Not the end of the world, but easier to make this commitment as an established scholar (rather than as someone just starting out)." Survey Respondent*

Specific opportunities to adapt RRU research, teaching and learning approaches in a changing climate include:

- **Flexible Learning and Teaching:** Building flexibility into systems for both instructors and students to accommodate disruptions caused by climate events. This includes flexible deadlines, alternative learning methods, and support systems.
- **Incentivizing Faculty Research:** Faculty are actively incorporating climate change issues into their courses. There is a need to encourage faculty to continue to engage in climate resilience research by prioritizing research funds towards these critical issues and providing incentives and support to sustain their involvement in this work.
- **Student Involvement:** Creating opportunities for students to participate in RRU climate resilience projects, such as internships and practical initiatives within the university to foster a sense of contribution and hands-on learning.
- **Interdisciplinary Collaboration:** Enhancing the integration of research and initiatives across different labs and institutes within the university, such as the ResilienceByDesign Lab and the Cascade Institute. In addition, some felt there could be better coordination to integrate climate change and Sustainable Development Goals (SDGs) across different programs to ensure a comprehensive educational experience.
- **Community Engagement and Applied Learning:** Many faculty and programs are working closely with local governments, community organizations, and First Nations to provide students with practical experience in climate resilience projects. However, some have suggested these external partnerships could be enhanced, including considerations to 'close the loop' on engagement to ensure partners and students are aware of the outcomes and impact of projects.

### 3.5 Buildings, Infrastructure & Services

Overall, several participants felt that the campus's aging infrastructure is ill-equipped to handle the increased frequency and intensity of climate events such as extreme heat, cold, and poor air quality from wildfire smoke (to name a few). Many older campus buildings lack adequate heating and cooling systems, making them uncomfortable or unusable during extreme weather. For example, older buildings like Millward lack adequate climate control systems, making it difficult for staff with health issues to work during extreme heat. In addition, some of the newer buildings, such as Sherman Jen or Snej'wa e'lun, also struggle to maintain comfortable temperatures impacting faculty, staff and students.

*"On campus it is too hot to work in Snej'wa e'lun on any day above 21-22°C. The one building for Indigenous students does not have AC or a system to clean the air. With wildfire smoke it is near impossible to stay in the building all day."* Indigenous Focus Group Participant

Specific themes discussed related to campus infrastructure included:

- **Living Conditions in Dorms:** The condition and location of on-campus housing, such as dorms without air conditioning, affect comfort and health during extreme weather events. Participants reported difficulties in maintaining a safe and comfortable living environment during heat waves and other climate events.
- **Water Management:** Some felt the campus's irrigation and stormwater management systems are outdated, some dating back over 100 years, making it ill-equipped to handle the increased frequency and intensity of droughts and heavy rainfall. The university's current irrigation system relies on captured water, but there is a need for expansion and modernization to ensure sustainable water use. There are concerns about public perceptions during drought conditions, particularly when campus lawns remain green due to the use of non-CRD water.
- **Energy Dependence and Vulnerability:** The campus's increasing reliance on electric systems, including for heating, cooling, and transportation, raises concerns about vulnerability during power outages. The dependence on a single energy source poses risks, especially if backup systems are inadequate.
- **Transportation and Mobility:** The campus's terrain, layout, and older buildings present significant issues for those with mobility challenges, especially during emergencies. Individuals without personal transportation face increased vulnerability during climate events, relying on potentially disrupted public transport systems. Suggestions include introducing electric scooters, golf carts, or enhanced shuttle services to improve accessibility; better shelters and facilities at transit stops, especially during adverse weather conditions; and enhanced consideration for accessibility in emergency plans.

Several themes related to service disruption were also named:

- **Maintaining Connectivity:** Power outages from extreme weather events disrupt operations, particularly for remote learners who rely on stable internet access. Ensuring continuous

connectivity (e.g. internet access, platform reliability) for global students, faculty and staff during climate events is a challenge.

*“Strategically plan for adaptations to learning delivery and schedules. RRU already had a strong remote learning model – can services such as IT, library and coaching be quickly adapted to provide delivery from other locations and perhaps at different times of the day?” (Survey Respondent)*

- **Event Disruptions:** Climate events like extreme heat or poor air quality pose significant risks to scheduled outdoor events and programs, which do not currently have robust contingency plans. Rising temperatures can have significant impacts on campus events, such as weddings and student gatherings, requiring better planning for hydration and cooling solutions.

*“Our overall approach to outdoor spaces...needs to be addressed as we plan for the next five and 10 years. Many event spaces have no natural shade outdoors, which could also offer shelter in rainy months, nor any cooling tech like misting stations or available outdoor power or water.” (Survey Respondent)*

### 3.6 Emergency Preparedness and Response

Nearly half of survey respondents indicated they are partially (45%) aware of RRU’s emergency response protocols and plans in the event of climate related hazards or emergencies. (About a quarter of respondents indicated they were not aware of emergency response protocols and plans). Respondents had varying perceptions of how prepared RRU is to respond to various hazards (see Figure 5).

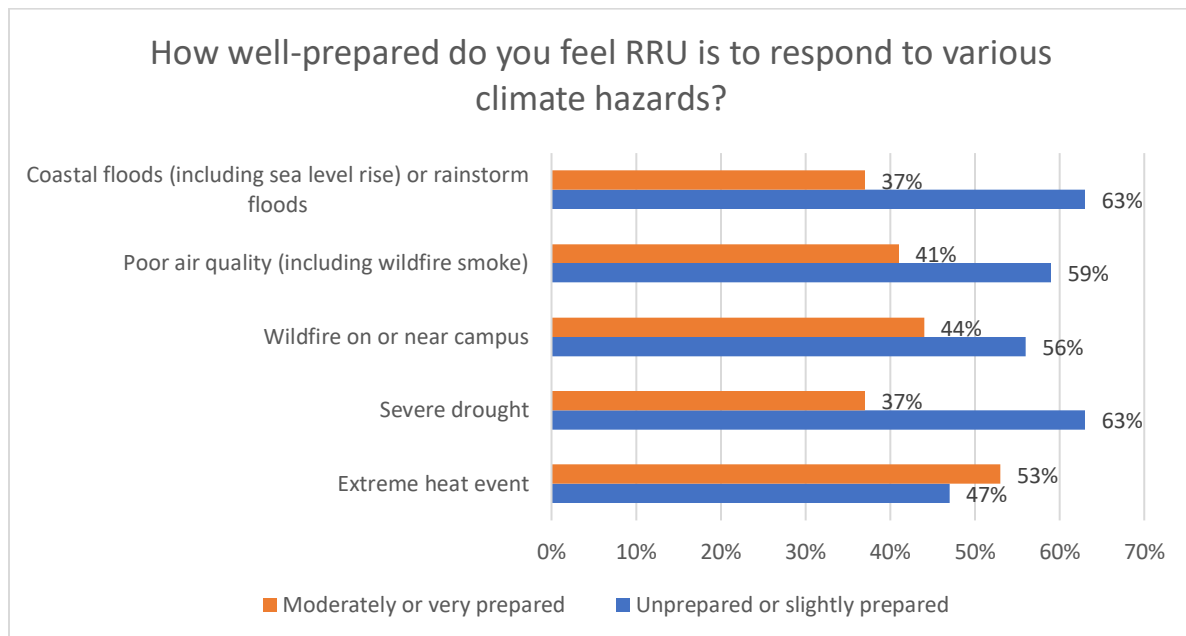


Figure 5. Perception of RRU preparedness to climate hazards (survey responses)

Engagement sessions highlighted some needs and challenges related to RRU emergency preparedness and response to climate-related events. Participants emphasized the need for timely, inclusive, and

accessible **communication** to ensure the safety and well-being of all members of the campus community during climate-related emergencies. The feedback underscored several key areas where improvements can be considered to enhance the effectiveness of the campus's emergency communication systems.

- **Timeliness and Clarity of Communication:** There is the perception that effective communication during climate events is at times delayed or inadequate, making it difficult for the campus community to prepare and respond promptly.
- **Accessibility and Inclusivity:** Ensure that emergency information is accessible to all, especially those with language barriers or disabilities. There is a need to address diverse communication needs across the campus community.
- **Challenges with Existing Communications Systems:** Current emergency alert systems, such as "Alertus," along with email and social media, have gaps in reaching all members, particularly non-regular staff, contractors, visitors, and remote workers. For example, increased use of campus spaces by the public during climate events raises concerns about safety, especially during windstorms. Participants highlighted the need for clear policies and communication to manage these risks. In addition, some felt there is a need for a more unified and consistent communication approach to ensure real-time information reaches everyone.
- **Communication Delays:** The process of crafting and disseminating emergency messages can be time-consuming, leading to delays in preparedness and response, affecting critical decision-making during emergencies.
- **Improving Centralized Communication Platform:** There is a strong call to continue improving the campus-wide alert system to disseminate information quickly and effectively to different types of campus users during emergencies.

Other key considerations raised by engagement participants for emergency preparedness and response include:

- **Emergency Planning:** Integrating climate resilience into daily operations and planning is essential to enhance preparedness and ensures that the campus community can effectively respond to climate events. There is a general lack of awareness and understanding among the campus community about existing emergency preparedness plans. There is a call for more robust, detailed and well-communicated plans, especially for scenarios like wildfires and extreme heat. Staff highlighted the importance of field-level hazard assessments, particularly for those responding to emergencies, such as floods or power outages.
- **Culturally Sensitive Emergency Plans:** There is an absence of clear and accessible emergency plans tailored to the needs of culturally diverse and Indigenous students, faculty and staff. Participants emphasized the importance of creating comprehensive and culturally sensitive emergency preparedness resources.
- **Practical Emergency Supports:** Some felt there is also a need for practical guidance and supports (e.g. emergency kits) to help members of the campus community, such as students, faculty and staff, build their own personal resilience to climate-related events.
- **Campus Role in Broader Community Emergency Response:** In the engagement sessions there was discussion about the university's potential role in supporting the broader community during

emergencies, such as offering cooling centres or safe spaces during evacuations. Some feel it is important to leverage campus resources to support the broader community during extreme weather (e.g. serve as refuges during climate events, providing safer environments for those affected).

- **Resource Allocation and Prioritization:** In emergencies, staff often face competing demands, such as maintaining safety while also addressing infrastructure failures. This highlights the need for clear protocols and resource prioritization to ensure effective and efficient responses.
- **Business Continuity:** Developing robust contingency plans to maintain operations despite disruptions is crucial for sustaining the university's educational and administrative functions. Some participants felt there is a need for clearer guidelines on ensuring business continuity during climate events, including specific roles and responsibilities for departments and staff, as well as comprehensive plans that address not just immediate responses but also longer-term sustainability and resilience.

### 3.7 Finance

Engagement sessions discussed the financial implications of climate change for the university highlighting some key themes.

- **Dependency on Natural Spaces:** The natural spaces, ecosystems and gardens at RRU are a hallmark of the campus and play a role in student experience and events. Degradation of these spaces due to climate change could pose a financial risk to the university due to the potential for event cancellations, which could lead to lost revenue and additional costs for rescheduling or modifying events.
- **Supply Chain and Infrastructure Vulnerabilities:** Climate change is expected to disrupt supply chains, leading to delays or shortages of essential goods and services. Additionally, damage to buildings and infrastructure will likely increase maintenance and repair costs, straining the university's financial resources.
- **Economic and Social Pressures:** Climate hazards are expected to intensify cost-of-living pressures, with implications for the financial well-being of students, faculty, staff, and the broader community.
- **Investment in Climate Resilience:** There is a clear need for dedicated funding to support climate resiliency efforts, including investments in infrastructure upgrades, policy changes to enhance sustainability, and mental health supports for the campus community.
- **Leveraging External Resources:** The university should explore external partnerships and resources to bolster its climate resilience efforts, especially in areas where internal funding is insufficient.

As the university faces increasing climate-related challenges, the impact on its financial stability and sustainability is becoming more pronounced. Participants emphasized the need for proactive strategies to mitigate these risks.



## 3.8 Global Considerations

In addition to the immediate impacts of climate change on the RRU campus, the university also needs to consider how the impact of global climate change can have far-reaching impacts on RRU recruitment and ability to provide services. For example,

- Participants noted how climate events can have far-reaching health and safety impacts on students, faculty and staff (e.g. wildfire smoke from outside the region).
- Stress related to witnessing the impact of climate change on diverse communities, especially those in the global south and Indigenous lands, was highlighted. Participants acknowledged the privilege of living in less impacted areas while understanding that others face more severe consequences.
- Concerns about future compounded effects of climate change, such as on food security and impacts on supply chains, were raised. Participants recognized the need to plan for long-term climate resilience.

## 4. Pathway to Climate Resilience

Royal Roads University (RRU) is uniquely positioned to enhance its climate resilience through its expertise in environmental education, strong community ties, culture of support, and commitment to sustainability. This section outlines the key strengths, challenges, and opportunities identified through the engagement sessions, highlighting RRU's potential to be a leader in building a path to climate resilience.

### Strengths

#### *Expertise and Knowledge*

A significant theme in engagement was RRU's growing community of climate action experts, leaders and professionals.

- **Environmental Programs:** RRU benefits from its position as a post-secondary institution with strong environmental programs such as the Master of Arts in Climate Action Leadership, the School of Environment and Sustainability, and the Master of Environmental Management, driving interdisciplinary research and practical solutions. In addition, participants praised RRU's project-based learning model that allows students to engage directly with climate challenges, fostering practical skills and innovative solutions.
- **Internal Expertise:** RRU staff and faculty with expertise in environmental sustainability and disaster management can contribute significantly to the university's adaptive capacity. Participants specifically mentioned the Resilience by Design Lab, Cascade Institute, and the new Director of Emergency Management. Faculty and staff can (and should) be consulted and partnered with as the university advances its climate resilience work.

*"RRU has faculty in a number of specialties who have understanding and expertise that is relevant to dealing with the negative effects of climate change events."* (Survey Respondent)

*"Teaching professionals can provide academic advice, while talented, skilled facilities workers can advise on practical realities and provide options for solutions within the existing campus infrastructure."* (Survey Respondent)

### **Flexible Hybrid Learning/Working Model**

Given RRU's learning model, it has a strong foundation of supporting distance learning, enabling remote work and maintaining operations which are all assets during climate disruptions. In addition, the smaller size of RRU allows for greater flexibility and adaptability in responding to climate events. The close-knit campus community enhances resilience.

*"Our digital infrastructure is important - we already know how to work together online or in a distributed manner."*

### **Dedicated Climate Action Team**

The Climate Action and Sustainability team at RRU is composed of passionate, capable individuals who collaborate across departments. Their work in making climate initiatives relatable and accessible is highly regarded. The team actively engages with various departments, fostering a culture of cooperation that strengthens climate initiatives.

### **Community and Collaboration**

Many commented on the strengths of the university's partnerships and collaborations with local partners and the broader community, enhancing a network that can support each other during climate-related emergencies. Several also named collaboration across departments and with the student body as key assets for climate resilience moving forward.

## **Needs/Gaps**

### **Climate-Resilient Buildings**

Many respondents emphasized the need for infrastructure upgrades to campus buildings, including climate-resilient buildings and renewable energy systems like solar power and heat pumps for air conditioning. In addition, the lack of infrastructure for cooling and clean air shelters was discussed as a current challenge.

### **Emergency Preparedness**

A theme from the engagement was a call for improved emergency preparedness plans, regular drills, and backup power systems (e.g., solar panels and batteries). Specifically, emergency preparedness awareness and training with staff, faculty and students were named as a gap. Finally, there is a need to ensure emergency response plans acknowledge and support vulnerable populations.

*"[We need] more awareness of what plans are in place. More education around the possible impacts of climate change events and what part we can play in handling these events as well."*  
(Survey Respondent)

*"Offer short videos on what to do during emergencies."* (Survey Respondent)

### **Awareness and Education**

Outside of formal educational programs, there is a desire for more regular training sessions, webinars, and workshops on climate-related topics for students, faculty, and staff, and even the public. Participants suggested that creating a community that is informed and aware can help to alleviate climate anxiety.

### Resources and Capacity

Some participants suggested that the small number of dedicated climate action staff and the reliance on voluntary participation limits the effectiveness of climate initiatives. In addition, staff have competing priorities, making it difficult to allocate sufficient time to advance business continuity and emergency preparedness plans.

### Systemic Issues

Climate change can exacerbate existing social inequities and create the conditions for new inequities to emerge. Integrating climate resilience at RRU will require continued commitment and intention to address deep-rooted systemic and structural issues that influence vulnerability and equity, such as colonialism and racism.

### Opportunities

Leverage Internal Expertise	<ul style="list-style-type: none"> <li>⇒ Engage the expertise within the university, such as the School of Environment and Sustainability and the Cascade Institute, to enhance climate resilience planning and action.</li> <li>⇒ Leverage student involvement in hands-on climate resilience projects.</li> <li>⇒ Engage broader representation of students and programs in climate resilience discussions and actions to ensure incorporation of diverse perspectives.</li> <li>⇒ Engage with staff subject matter experts within the university, such as arborists and horticulturists, in planning and decision-making processes for climate resilience.</li> </ul>
Centre Equity in Climate Action	<ul style="list-style-type: none"> <li>⇒ Ensure climate policies and plans address the unique challenges faced by diverse campus populations, including Indigenous populations, international students, those with mobility challenges and disabilities, those with health conditions, and low-income students.</li> </ul>
Uphold Indigenous Knowledge Systems and Partnerships	<ul style="list-style-type: none"> <li>⇒ The transfer of campus lands back to the Songhees and Esquimalt Nations presents an opportunity for deeper collaboration and respect for traditional knowledge, particularly to take a more comprehensive approach to climate resilience.</li> <li>⇒ Respect and uphold Indigenous knowledge systems as integral to climate adaptation and resilience on campus.</li> <li>⇒ Ensure Indigenous control over how Indigenous knowledge is represented in the curriculum and in policy related to climate change.</li> </ul>
Enhance Awareness, Education and Engagement	<ul style="list-style-type: none"> <li>⇒ Create accessible educational resources, such as recorded sessions with experts, to improve climate literacy of the campus community to ensure continuous learning and engagement without the need for constant in-person resources.</li> <li>⇒ Conduct regular emergency drills, involving students, faculty and staff in these activities to enhance readiness.</li> <li>⇒ Improve communication with the broader community about the university's climate and sustainability efforts and the rationale behind certain practices,</li> </ul>

	<p>such as water use during droughts. This transparency can help manage perceptions and support from both the campus and surrounding communities.</p> <p>⇒ Proactively engage the campus community in ongoing climate-resilient practices, planning, and programs (e.g., community gardens, living labs, resilient campus events, climate action committees) to build a culture of sustainability and resilience, extending beyond emergency response.</p>
Enhance Emergency Preparedness	<p>⇒ Assess the efficacy and reach of emergency communications systems (e.g. Alertus) to ensure that students, faculty and staff receive timely information during climate-related events.</p> <p>⇒ Consider developing targeted extreme weather communications for the broader campus community, including visitors, providing information about risks and recommended precautions (e.g. avoiding forest in wind storms).</p> <p>⇒ Explore the campus's role in supporting the broader community (e.g. local residents and neighbouring Nations) during emergencies, such as offering cooling centers or safe spaces during evacuations.</p>
Plan for Climate-Resilient Infrastructure	<p>⇒ Plan for long-term infrastructure improvements, such as installing or upgrading air conditioning systems, ensuring that buildings are designed to withstand extreme temperatures, and upgrading water management systems, forecasting future climate conditions and ensuring that the campus can adapt to these changes.</p>
Mental Health Supports	<p>⇒ Provide accessible mental health supports and resources for campus community members, recognizing that everyone may experience mental health impacts from climate change—whether acute, from events like wildfires, or slower onset, such as eco-anxiety from long-term climate impacts. Foster a culture of care and cooperation by promoting social connectedness within the institution and building a well-connected, supportive community.</p>
Climate Leadership	<p>⇒ Position the university as a leader in climate action by promoting climate literacy and resilience. This includes integrating climate change topics across all programs and leveraging the expertise of its alumni network.</p> <p>⇒ Integrate and formalize roles and responsibility related to managing climate-related risks and building climate resilience by breaking down departmental silos and fostering a culture of collaboration.</p> <p>⇒ Collaborate with other universities and organizations that have experienced extreme weather events can learn from each other and share insights and best practices.</p> <p>⇒ Continuously review and improve climate action plans, emergency preparedness drills, and communication strategies to stay ahead of emerging climate challenges.</p>