HCRI ANNUAL REPORT

HAZARD AND CLIMATE RESILIENCE INSTITUTE

BOISE STATE UNIVERSITY

Contents

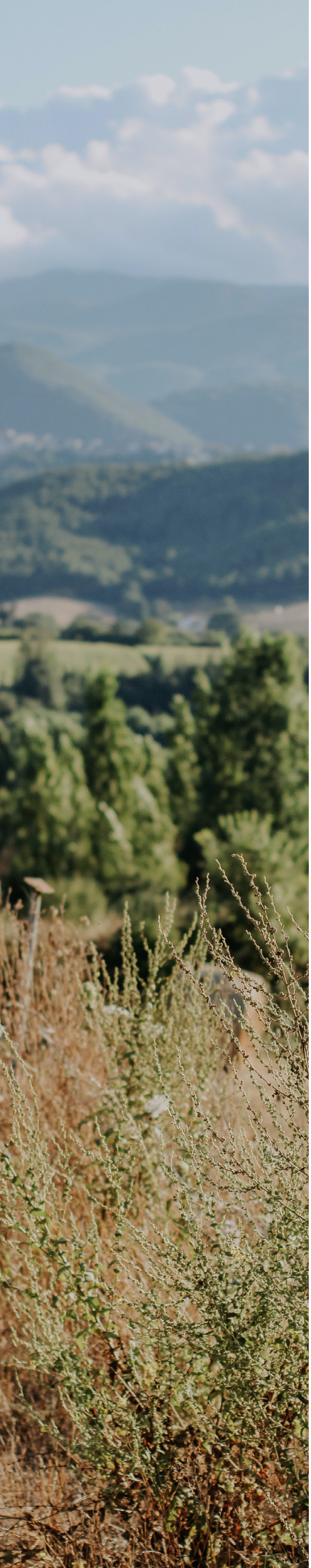
OVERVIEW

The mission of the Hazard and Climate Resilience Institute (HCRI) is to provide a platform to connect researchers, students, and community partners to collaboratively address community resilience research and practical needs.

Motivation and Vision

Community Resilience refers to the capacity of a community or region to adapt to change and thrive despite the chronic stresses (access to resources, climate change) and acute shocks (flooding, wildfire, pandemic) they may experience (Resilient Cities Network). Promoting community resilience requires collaboration across many levels of society and professional disciplines.

A critical step toward building resilient communities is to take action to reduce risk before a disaster strikes. Efforts to mitigate and prepare for future events minimize the impact of disasters, allowing communities to respond and recover from events more effectively.



Every dollar spent on mitigation before a disaster corresponds to six dollars saved on response and recovery after a disaster. Thus, resiliency efforts can save the government millions of dollars while simultaneously strengthening infrastructure to reduce the degree of damage, economic loss, and fatalities. Tackling resiliency requires efforts from a wide range of disciplines.

For example, natural scientists identify the causes and consequences of environmental threats, social scientists assess the factors that contribute to vulnerability and risk, engineers ensure the built environment meets safety code to reduce risk, public policy professionals translate information into policy change, and emergency managers mitigate and respond to threats.

Finding solutions to such multifaceted problems requires an interdisciplinary, collaborative approach. However, the structure for connecting researchers and practitioners across disciplines is often unavailable, inhibiting progress on real-world problems.

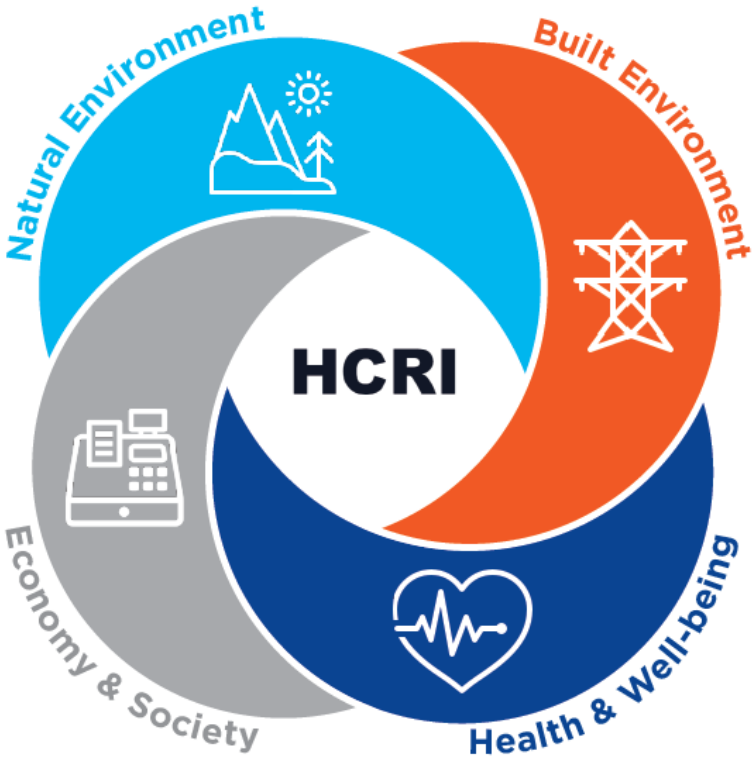
To address the need for an interdisciplinary approach to tackling community resilience and sustainability, we founded the Boise State HCRI.

Our vision is to become a nationally recognized research and training center that facilitates the co-development and application of risk and resilience knowledge with stakeholders.

We aim to reduce the impacts of future hazards while cultivating social and environmental equity.

Our Pillars

The HCRI research pillars capture the interconnection between and amongst disciplines, highlighting the dynamic and multifaceted nature of community resilience. Our goal in promoting these pillars is to foster connections and collaborations between disciplines and across sectors.



Natural Environment

Our natural environment is ever-changing as geophysical processes and human activities shape how landscapes and ecosystems evolve.
To build resilient communities, we must consider what resilient environments look like.

This environment includes all organisms (plants, animals, and humans) who depend on one another for survival and whose relationships are mediated by competition for resources. Under this pillar we consider research related to the health of our planet, natural resources, natural hazards, risk, risk reduction, and climate change.

Health & Well-being

Ensuring each individual's health and well-being is essential for community resilience. The more resilient that a community is, the more likely its members will be to preserve their physical and mental health, and sustain their education, employment, housing and economic stability.

Moreover, increasing community resilience helps enable individuals to prepare for and recover from adverse events. Research under this pillar is related to the environmental, economic, and social conditions that foster healthy and thriving communities.

Infrastructure & The Built Environment

Infrastructure and the built environment impacts how responsive communities can be to adverse events and to changing needs.

As communities expand and evolve, the infrastructure decisions being made now will impact the resilience and sustainability of future generations. Infrastructure can also create opportunities for resilience.

For example, new transportation routes could make connections from rural areas to urban ones, generating access to vital resources for those in rural communities. Research under this pillar is related to the reliability and strength of critical infrastructure (communications, power grid, buildings built to hazard code), and systems facilitators or inhibitors to improve or build stronger infrastructure (e.g., capital, policy).

Economy & Society

The economic welfare and social wellbeing of a community has a direct impact on its resilience. Communities require strong social safety and effective economic policy measures to support and protect people and valuable resources. When economic and social justice are upheld, individuals, families and communities can thrive.

This pillar focuses on topics related to economic and societal conditions that (1) allow communities to prepare for, respond to and recover from adverse natural events and economic shocks, and (2) foster thriving, healthy communities.

Our **Team**

Leadership

Brittany Brand

Executive Director

- Outward face of the institute – networks and connects with partners, members, and potential members
- Grows Institute through networking, connecting and identifying projects, and identifying grant opportunities
- Leads HCRI grant writing
- Leads branding and marketing
- Establishes committees to oversee initiatives, such as curriculum development, community engagement, and conference planning
- Establishes working groups and research groups for HCRI-related projects.
- Leads annual and long-term strategic planning
- Advises HCRI research students
- Leads Vertically Integrated Project (VIP) Building Resilient Communities course

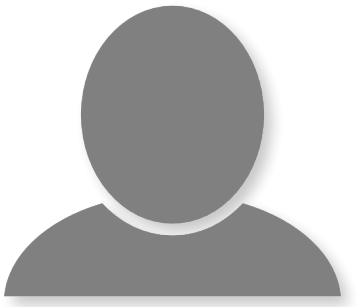
0.2 FTE Annually for Institute Efforts

Nick Hudyma

Co-Director (2-year rotating position)

- Grows institute through networking, connecting and identifying projects, and identifying grant opportunities
- Leads or supports HCRI grant writing
- Assists Director in establishing committees to oversee initiatives, such as curriculum development, community engagement, and conference planning
- Establishes working groups and research groups for HCRI-related projects
- Supports annual and long-term strategic planning

0.1 FTE Annually for Institute Efforts



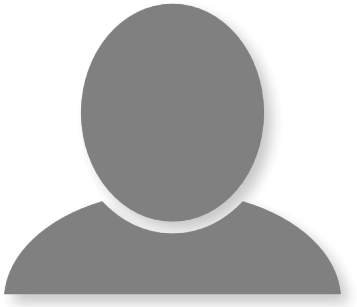
Currently Vacant

(Carson MacPherson- Krutsky (M-K) from 2019 - 2023)

Community Engagement Coordinator/Research Scientist

- Identifies community interests and needs
- Organizes opportunities to connect around community interests and needs
- Coordinates with and oversees HCRI intern
- Leads and supports HCRI grants
- Supports strategic planning efforts
- Advises and mentors HCRI students

Supported through research grant funding



Currently Vacant

(Dr. Matt Isbell from 2019 - 2022)

Director for Strategic Development

- Leads Organizational Development and Strategic Planning
- Assists with meeting planning (objectives, meeting style, agendas)
- Supports grant writing (as needed; as appropriate)
- Assists with bi-annual Conference and Bi-Annual Networking Planning

0.1 FTE Annually for Institute Efforts

Executive Team

Saleh Ahmed (2018 to present)
Urban Planning Change Global Studies

Kelly Rossetto (2018 to present)
Personal Resilience Communication

Jared Talley (2021 to present)
Environmental Studies

Lee Parton (2022 to present)
Department Of Economics

Ben Wells (2022 to present)
Boise State Emergency Manager

Eklas Hossain (2023 to present)
Electrical And Computer Engineering

Bhaskar Chittoori (2018 - 2023)
Luke Montrose (2020 - 2022)

Emily Wakild (2018 - 2023)
Jayash Paudel (2020 - 2022)

Responsibilities

- Attend regular HCRI meetings
- Serve on committees: Operations, Community Engagement, and Annual Initiatives
- Lead or assist with proposal writing (as needed; as appropriate)
- Tag proposal submissions as HCRI when appropriate (developed using HCRI resources or collaborations)
- Advise HCRI students under your discipline (e.g., VIP students)
- Promote HCRI through your professional networks
- Vote on initiatives
- Identify potential HCRI projects
- Assist with annual reporting

0.025 - 0.05 FTE Annually for Institute Efforts (1-2 hours/week)

Please see link for affiliations:
https://www.boisestate.edu/research-hcri/about-us/

Advisory Board

Jay Breidenbach

National Oceanic and Atmospheric Administration

Lance Davisson

The Keystone Concept & Treasure Valley Canopy Network

Mat Erpelding

Boise Metro Chamber

Rob Flaner

Waiting for an update

Megan Gambs

Boise State Stem and Diversity

Liisa Itkonen

Compass (Metropolitan Planning)

Chris Johnson

Idaho Rural Water Association

Michael Lindell

Former Director for Texas A&M Hazards Center

Crash (Paul) Marusich

Ada County Emergency Management

Lyle Nelson

Mccall City Counselor

Gregg Servheen

Idaho Resident

Responsibilities

- Attend HCRI meetings as requested
- Recommend new avenues of research or partnerships to explore
- Review and comment on initiatives
- Provide guidance as HCRI grows; Review and comment on strategic plan
- Ensure HCRI work is grounded in community needs
- Promote HCRI through your professional networks, making introductions to specific stakeholders as/when appropriate
- Assist in identifying fundraising or grant opportunities
- Promote community engagement events Participate in proposal writing and projects (as appropriate)

Voluntary - Expectation to attend 2 meetings per year and help with annual strategic planning

Administration

Erin Bricker

Operations Manager

- Establishes and maintains internal policies and procedures for administrative activities. Implements work plans and initiatives.
- Directs the annual reporting functions of the unit, including (but not restricted to) the number of grants submitted/awarded, publications, conference presentations, etc of our executive team. May serve as the lead for special projects as assigned.
- Reviews grant, contract and entrepreneurial activity coordination for compliance. Ensures all project expenses are in compliance with sponsor guidelines and University policies.
- Creates and manages budget projections, analyzes revenue and expenditures and other funds. Oversees the management and coordination of all fiscal reporting activities.
- Researches and analyzes data for accuracy, trends, and variances to ensure acceptable business practices, procedures and compliance have been followed.
- Collaborates with staff and faculty and other administrative units to identify opportunities and develop solutions to problems and issues
- Develops and implements promotional strategies to enhance the visibility for the HCRI and university.
- May supervise and direct the work of others

Funded through CAES at 5-8 hours/week. Funding ends May 2023.

Miyuki Henry

Graphic Designer/Intern

- Maintain webpage (post events, upload new member profiles)
- Maintain Twitter feed and YouTube channel
- Create flyers for events and take notes at events
- Participate in research projects as needed
- Graphic Design

Funded through Work Study

Faculty, Staff and Students; Community Partners

Please see our website for a full list of members, research students, community partners and university partners:
https://www.boisestate.edu/research-hcri/about-us/

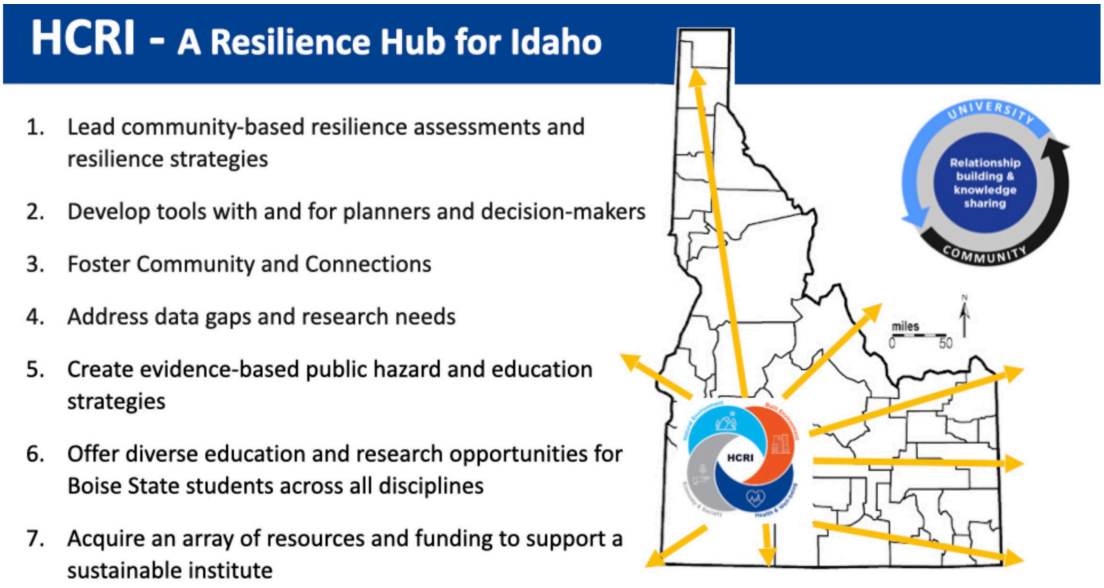
Responsibilities

- Attend and participate in events as needed/interested
- Use platform to connect with new colleagues
- Suggest topics to explore and/or research
- Engage in HCRI research and course development (as appropriate)
- Apply for HCRI grant funding to support student projects or seed funding for faculty/staff-led projects

Voluntary

Objectives and Activities

We are building the HCRI into a resilience hub for Idaho and beyond through the implementation of seven key objectives. They are described in detail below and include an overview of each objective and specific activities that fall under them.



Objective 1

Lead community-based resilience assessments and resilience strategies

Annually, the U.S. spends billions of dollars recovering from disasters. Research shows that every $1 spent on mitigation saves $4-6 in post-disaster recovery, highlighting the need for pre-disaster research and mitigation.

Further, developing ways to measure resilience and build resilience strategies that reduce risk, enhance economic resilience, identify and prioritize infrastructure upgrades, and address the most pressing needs of our communities, is a national priority[1-5].

However, rural communities typically lack the capacity and expertise to build collaborative resilience strategies, and most resilience metrics are designed for urban centers[6].

In 2021, the HCRI along with six students enrolled in the Building Resilience Communities VIP course piloted a resilience assessment approach that adapts the City Resilience Index[6], designed for urban centers, for the rural City of Kamiah, ID.

The team engaged cross-sector regional stakeholders and rights holders, including the Nez Perce Tribe, to conduct a resilience assessment for the City, which is located at the boundary of two counties and within the bounds of the Nez Perce Tribe Reservation.

To build the Kamiah Resilience Assessment, we convened 24 group interviews with a total of 42 participants (some participants were involved in multiple interviews), totaling more than 50 hours of interaction. The purpose of the group interviews was to bring together community members from across sectors and enhance community connections and collaborative potential.

The assessment considers acute shocks, such as natural and anthropogenic disasters, and chronic stressors, which are slow-evolving issues such as poverty, lack of economic resilience, housing, and food insecurity that weaken the fabric of a community over time.

We include the dimensions of infrastructure and environment, economy and society, leadership and strategy, and health and well-being. Fifty-two indicators evaluated through 156 indicator questions (both qualitative and quantitative) determined the community's strengths and areas of need beneath each dimension.

Following the assessment, the HCRI team led a solutions-focused community workshop with 50 attendees to develop a resilience strategy roadmap. We shared our process, list of interviews and interviewees, and all results through a user-friendly the Kamiah Resilience Website.

This was accomplished over an 8-month period that included one semester of our VIP Building Resilient Communities course (Spring 2022).

Community-based resilience assessments and resilience strategies City of Kamiah Case Study

During fall of 2022 and continuing into spring 2023, we helped the City of Kamiah get started on their resilience strategy actions by connecting Boise State professors and students aligned with specific research projects through our ongoing VIP course.

1

Collaborative flood mitigation and shared decision-making through the Lawyer Creek Technical Working Group

Faculty:
Dr. Brittany Brand, Geosciences

Student:
Anujay Chopra (undergraduate), Communications

2

Lewis County Tax Revenue and Economic Resilience Assessment

Faculty:
Dr. Lee Parton, Economics

Student:
Tayah Brodt (undergraduate), Economics

3

Kamiah Infrastructure Asset Mapping and Upgrade Plan

Faculty:
Drs. Brittany Brand and Carson MacPherson-Krutsky, Geosciences

Student:
Sabrina Akther (graduate), Geosciences

4

Kamiah Housing Assessment and Improvement Plan

Faculty:
Drs. Brittany Brand and Vanessa Fry

Student:
Nathaniel Campbell (undergraduate), Urban Planning

Testimonials:

> The work produced by the HCRI ... far transcends any expectation the city could have hoped for and continues to this day.
>
> The body of work, analysis, and data compiled by the HCRI will serve the City of Kamiah into the next decade for decision-making and grant application purposes.
>
> - Mike Tornatore, Deputy Clerk, City of Kamiah

> The HCRI is engaging the Kamiah community in resilience discussions and coordinating efforts to make lasting improvements for a safer Kamiah.
>
> Dr. Brand reached out to tribal, city, county, and community stakeholders for input on what is important gathered their vision, and provided professional presentations and data to inform decisions.
>
> HCRI provided an important service to get the ball rolling in a beautiful, underserved Idaho community.
>
> - Susan Cleverley, Mitigation Section Chief, Idaho Office of Emergency Management

While this pilot was successful, we discovered the need to:

- **develop more relevant metrics for rural communities,**

- **research how to scale up this model for university-community partnerships, and**

- **create an interactive, web-based tool that compiles resilience assessment results and strategies into a user-friendly dashboard. This dashboard will help communities identify and track resilience projects**

The HCRI executive team is working to update and expand this interdisciplinary, community-engaged, solutions-oriented, and student-centered opportunity to serve more communities in the future.

We are also creating a model for developing a robust university-community partnership-driven program for building resilience in communities of all sizes that can be adopted by universities in other states.

Activities under this goal include:

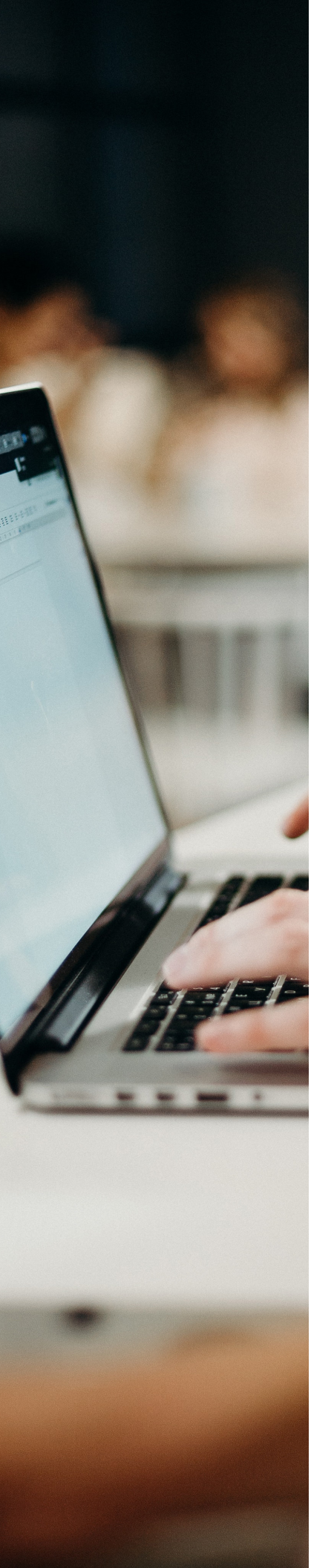
1. **Developing a model for funding resilience assessment and strategy work**

   NSF grants (NSF CIVIC or HDBE proposal)
   City contract model
   Philanthropic support

2. **Develop a model for expanding this work to serve more Idaho communities**

3. **Creating and publishing a model for university-community resilience building partnerships**

4. **Maintaining membership in the EPIC-Network to learn from similar efforts by partner universities**



Objective 2

Develop tools with and for planners and decision makers

High quality hazard data are becoming increasingly available with advances in data collection technology (e.g., LiDAR) and computer software (e.g., ArcGIS).

However, use of this data for planning purposes is limited by local officials' ability to access the information, interpret it, and apply it in their communities. This is especially true for small and rural communities with less resources (e.g., time, technology, personnel).

Additionally, hazard data are typically not paired with social data such as housing affordability, % of community with disabilities, % of community that is non-English speaking.

This issue makes it challenging for local planners and emergency officials to use these data to assess local vulnerabilities, define mitigation projects, and plan for future development.

Existing resources such as the FEMA National Risk Index are excellent for providing county-level information about hazard risk and social vulnerability but are not granular enough for use at the local level.

Resilient communities are able to plan for changing conditions. The HCRI leverages the capacity of the University to better support communities in their resilience planning.

Through user-centered design, we work with communities to develop interactive web platforms that consolidate relevant hazard, infrastructure, and social vulnerability data such that it can be easily understood and used by local officials to reduce hazard risks.

Activities under this goal include:

1 Valley County FEMA RiskMap Project

HCRI was awarded a FEMA cooperating technical partner grant in 2022 to develop a web tool for Valley County, Idaho that consolidates relevant hazard, social vulnerability, and critical infrastructure data such that it can be easily understood and used by local officials for risk reduction and decision-making.

We are working with practitioners to ensure this work will

(1) help decision makers better identify vulnerabilities and prioritize hazard mitigation actions,

(2) enable the communities to better understand and communicate risk, and

(3) execute more holistically informed planning decisions for community resilience.

Develop tools with and for decision makers

Humanizing Flood and Other Hazard Data for Use in Local Resilience Planning

Cooperating Technical Partner Project

Risk Mapping, Assessment and Planning (Risk MAP)

The platform will consolidate relevant data such that it can be easily understood and used by local officials to make planning decisions and reduce hazard risks.

NEW AWARD AND NEW PHD STUDENT!

Social vulnerability + Flood & other hazards + Infrastructure = Decision-making web platform

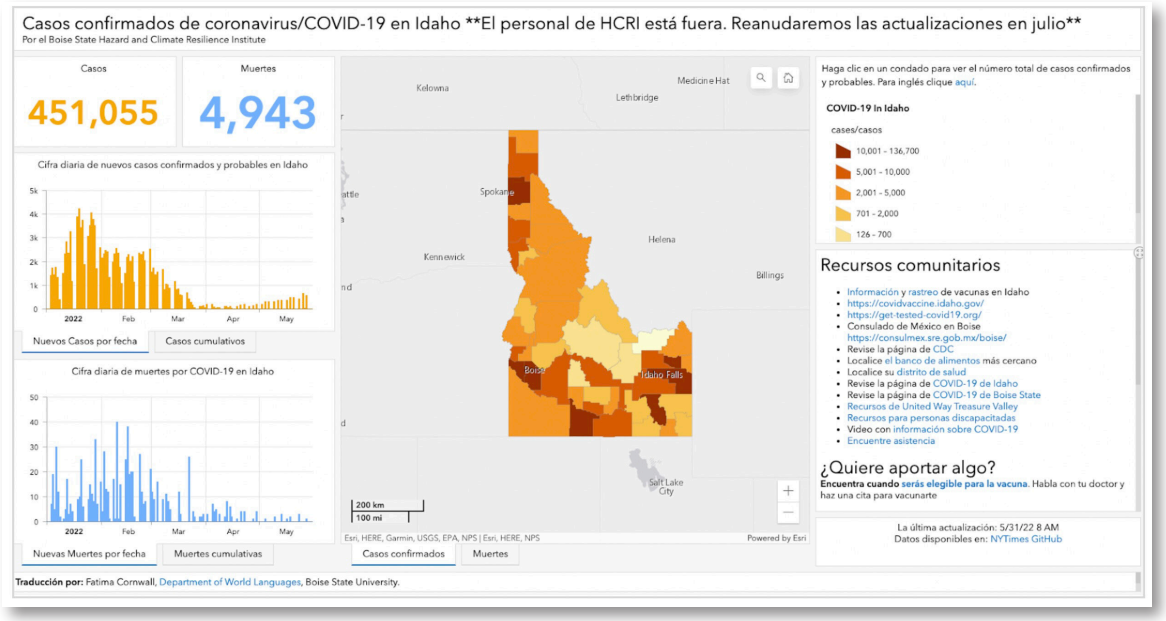
2 COVID Dashboards

In the spring of 2020, the HCRI was asked to develop a series of web tools to communicate the spread of COVID-19 in Idaho and at Boise State.

To respond to this, a multidisciplinary team came together to develop user-friendly information dashboards, available in English and Spanish. The state dashboard was maintained daily for two years and recognized by Governor Little as a helpful resource for Idaho.

The Boise State dashboard is still active.

a. Boise State Public Health Dashboard
b. Idaho State COVID Dashboard (English) - 99,535 Views since 2020
c. Idaho State COVID Dashboard (Spanish) - 3,926 views since 2020



Caption: Spanish version of the State of Idaho Dashboard. The page includes cases, deaths, graphs showing change over time, and a list of local resources.

3 Identifying community data needs through community engagement events and developing funded partnerships to address those needs

4 Creating and publishing a model for developing tools with and for communities across Idaho

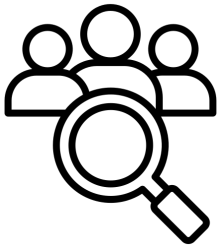
Objective 3

Foster Community and Connections

A resilient community is a connected community. As such, the HCRI strives to build relationships and trust with community partners and communities across Idaho through one-on-one and group meetings, and by attending and presenting at conferences across the state.

We also bring together people, organizations, and communities who may not otherwise have an opportunity to connect through engagement and networking events.

Through these efforts we hope to build connections, relationships, and solutions-based, interdisciplinary, community-engaged projects between



(1) researchers across disciplines,

(2) researchers and community partners, and

(3) community partners across sectors.

Activities under this goal include:

1 **Monthly Community Engagement Events**

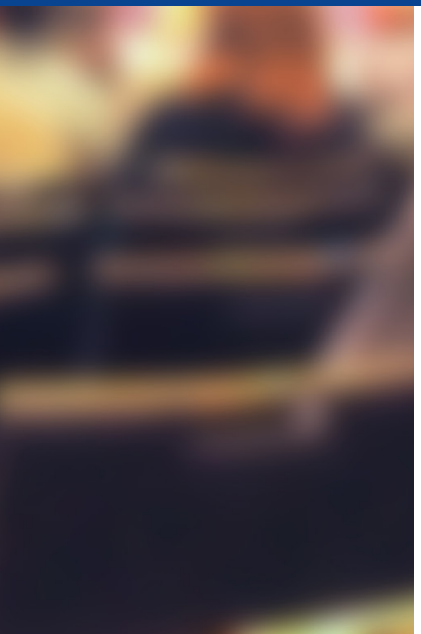
these events bring together community experts from Idaho and beyond to discuss pressing societal issues and challenges under the umbrellas of resilience and sustainability.

We invite non-academics to provide critical context on resilience and sustainability issues within and across Idaho communities and their efforts to address challenges.

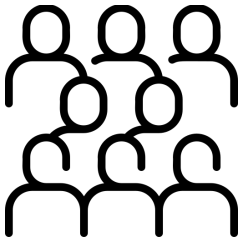
To plan events, we intentionally engage members of the Boise State community from across disciplines with expertise in each topic.

In addition to an opportunity to learn from one another, we anticipate that these events may help inspire collaborative, university-community partnerships on solutions-oriented, real world projects.

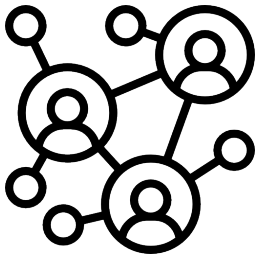
2021 - 2022 Resilience Needs and Actions Webinar Series



Monthly Events



More than 400 attendees!



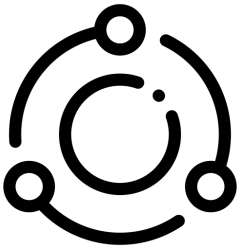
2 Networking Events/Social Mixers

We hold networking events that bring together university researchers and community partners (existing or potential) to build connections and community.

These events are intended to celebrate achievements, introduce people from different spaces to one another, and foster understanding and appreciation for different perspectives on societal challenges.

3 Create a calendar of events and conferences for HCRI faculty and students to attend

HCRI Faculty and Students will participate in external panel events and conferences with the purpose of listening, learning, connecting, and ultimately building collaborative projects.



4 Resource Nexus for Sustainability Grand Challenge

HCRI Director Brand led the 2022 grand challenges proposal, which brings together faculty from across campus to collaborate on a planning grant to create a ‘interdisciplinary ecosystem’ on the topics of sustainability and resilience.

Since the HCRI is already working hard to create the transdisciplinary research ecosystem, it was natural that we led this effort.

Objective 4

Address data gaps and research needs

Communities with expertise and resources are more resilient. To address this, the HCRI provides stakeholders with access to university resources and opens collaborative possibilities.

Our institute aims to help connect and motivate Boise State researchers and students to provide insight, expertise, and resources to communities to help build resilience.

We also aim to help communities identify their data gaps and research needs to better recognize where research relationships should be developed.

The value for community/regional stakeholders (hereafter referred to practitioners) is access to Boise State resources, research, and collaboration opportunities.

Practitioners also have HCRI member profiles where they can highlight relevant efforts and projects.

They can use the HCRI to identify possible interns or future employees and provide insight into ongoing projects to ensure a practical, real-world application.

Activities under this goal include:

1 Collaborative Research Proposals

A few examples are listed here.

a. EPSCoR RII Track-2 FEC: Collaborative Research: RII Track-2 FEC: Climate-Informed Wireless Sensor Networks for Studying Water and Soil Health.

b. NSF Humans, Disasters, and the Built Environment: Collaborative Proposal: Household response to wildfire – integrating behavioral science and evacuation modeling to improve community wildfire resilience.

2 Dissemination of Research Findings to a Wide Audience

For example.

a. Boise State Public Health Dashboard

b. Idaho State COVID Dashboard (English) - 99,535 Views since 2020

c. Idaho State COVID Dashboard (Spanish) - 3,926 views since 2020

d. City of Kamiah Resilience Website

3 Resource Nexus for Sustainability Grand Challenge

The recently launched Boise State Resource Nexus for Sustainability (RNS) Grand Challenge tackles the issues of resilience and sustainability with the goal to build more resilient and sustainable urban and rural systems.

A team of scholars from across academic units and community partners are working to catalyze a nexus of scholars and practitioners to explore interactions between the built and natural environment through the lens of many disciplines and stakeholders.

The goal of this grand challenge is to build an interdisciplinary, community engaged research ecosystem to tackle sustainability challenges in Idaho and beyond through applied, solutions-oriented projects.

Given the overlap with this initiative and the work of the HCRI, HCRI Director Dr. Brand leads this effort for the university and leverages our HCRI network and events to promote the cause.

4 Idaho State Hazards Technical Working Group

We are providing the most up to date and accurate hazard maps for all of Idaho.

Objective 5

Create evidence-based public hazard and education strategies

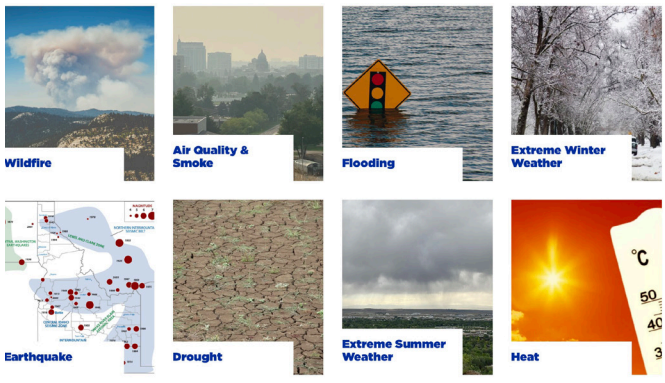
A resilient community is an informed community. The HCRI provides information about hazards and resources through our website and community-based education-outreach opportunities.

Our education-outreach events integrate active learning techniques with risk perception and preparedness behavior theory to motivate participants to take action to protect themselves, their property, and their loved ones.

Activities under this goal include:

1 **Creating and Maintaining Hazard Information Pages**

The HCRI worked with a variety of academic and community-based experts to create the following hazard webpages: wildfire, flooding, extreme winter weather, earthquake, drought, extreme summer weather, heat, air quality, and smoke, climate change. Upcoming pages include landslide and cybersecurity.



2 Wildfire Preparedness Workshops

These workshops are designed to help participants better understand wildland Urban interface (WUI) hazards, personalize their household risk, and develop positive attitudes toward taking mitigation and preparedness actions.

We use active-learning and goal setting strategies to help participants engage with the material and set reasonable, measureable, and achievable goals.

Pre- and post-questionnaires allow us to assess changes in participants' knowledge, perception, and protective action intention.

The workshop was developed in collaboration with the Boise Fire Department and Idaho Firewise with an external review from the Fire Adapted Network. It is designed to be place based and adaptable to different fire-prone ecosystems and communities.

3 Earthquake Preparedness Workshops

Spanish-speaking communities are rarely involved or represented in earthquake preparedness resources and few materials are tested for their effectiveness at promoting preparedness.

To address this gap, HCRI researchers worked to develop earthquake education workshops that are accessible to Spanish-speaking audiences and are facilitated by Spanish-speaking community members.

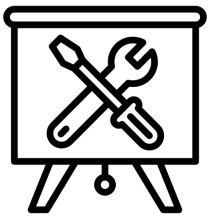
They used education best practices to develop a general flow for the interactive 90-minute workshop and then updated the content based on feedback from community members and partners to ensure it was culturally relevant.

The team used a "train the trainer" approach to teach local partners how to deliver the workshops in Spanish.

The workshop audience were Spanish speakers living in the Portland, Oregon region who will be impacted by a Cascadia Subduction Zone earthquake. However, materials could be easily adapted for anyone living at risk to earthquakes.

4 **Partnering with NOAA as a Weather Ready Nation Ambassador**

We advise on NOAA's outreach materials such as severe weather flyers. NOAA also collaborates on our climate-related hazard pages.



5 **Developing new preparedness workshops as needed**

Objective 6

Offer diverse education and research opportunities for Boise State students across all disciplines

Resilient communities need a workforce trained to think holistically about problems.

The HCRI helps Boise State students from across disciplines gain experiences with real communities and resilience-related problems.

We build coursework that helps students develop skills related to stakeholder engagement, technical writing, presenting, research and more all while meeting community needs through applied projects.

Students also have professional development opportunities such as presenting their research at annual events, finding internships or research opportunities, and networking within the community.

Activities under this goal include:

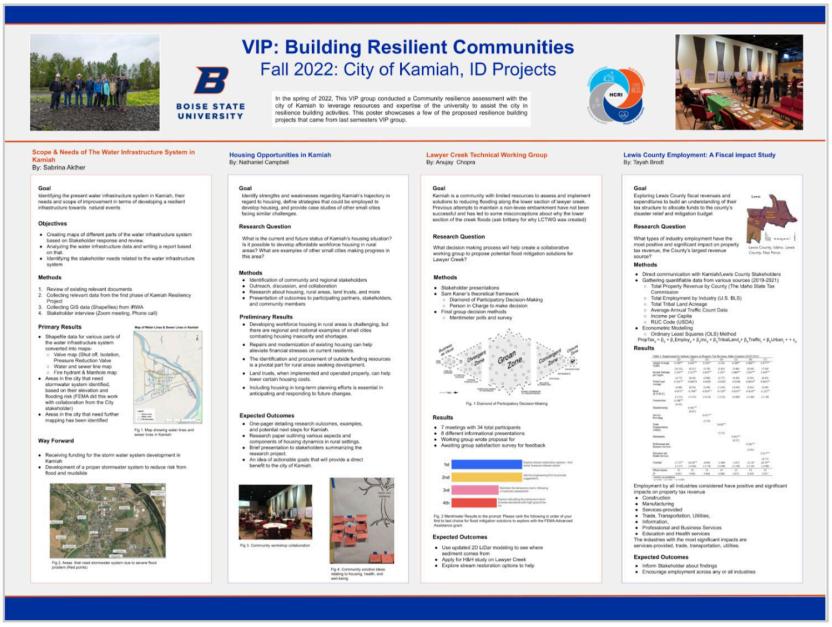
1 Vertically Integrated Project (VIP) Building Resilient Communities Class

Each semester, students work with an Idaho community to identify the societal, economic, and environmental stresses that comprise a community's quality of life and capacity for resilience.

Our analysis includes components of the natural environment, built environment, health and wellbeing, economy and society, and leadership and strategy.

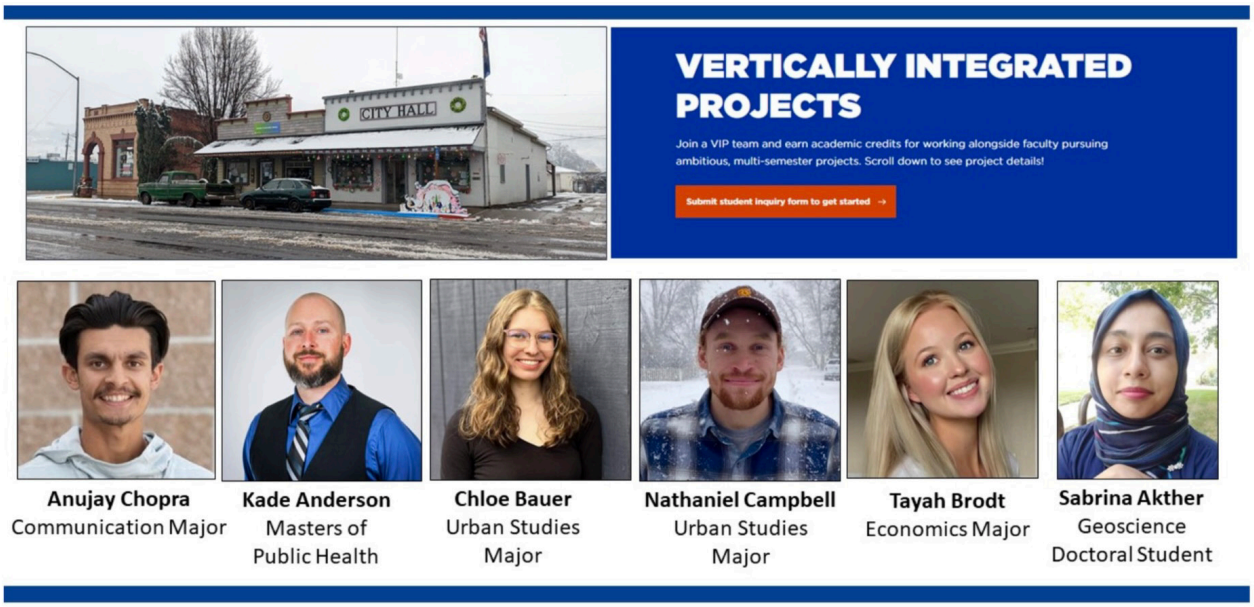
Project outcomes, developed with and for community partners, include a prioritized list of feasible, actionable projects that will serve to strengthen the city and region.

In future semesters, students can select projects from this list within their interest to work on.



VIP Poster Caption:

In Fall of 2022 the VIP students presented a poster at the VIP Student Showcase that included information about each student's project and next steps.



2 Seismic Retrofit Assessments

Tetra Tech Consulting, Geoscience, and Engineering students are partnering to complete a seismic vulnerability assessment for four counties in eastern Idaho.

They will write a report for each county that includes the assessment and make critical infrastructure retrofit recommendations.

Funding for this project comes from the Idaho Office of Emergency Management through a FEMA grant.

Objective 7

Acquire an array of resources and funding to support a sustainable institute

Sustainable processes help to build resilient communities and systems.

The HCRI is committed to developing a sustainable funding plan for all our activities. Our funding needs fall under two categories,

(1) Institute Staffing and Administration and

(2) Research, Teaching, and Applied Projects.

To address these needs we developed a plan to seek funding from diverse sources including grants (internal/external) and fees for service.

Activities under this goal include:

1 **Institute Support**

The HCRI was awarded financial support from Boise State including a $20,000 grant to support our research grant competition and $15,000 through Center for Advanced Energy Studies (CAES) to support our Business Operations Manager (1 year, part-time).

2 Research Grant Support

A few recently awarded grants are listed here.

a. NSF Humans, Disasters, and the Built Environment: Collaborative Proposal: Household response to wildfire – integrating behavioral science and evacuation modeling to improve community wildfire resilience (281K)

b. NSF CMMI – Infrastructure Management & Extreme Events (2017 - 2022) Assessing the influence of cultural variables, perceptions, and earthquake hazard information on household emergency preparedness. (PI; $536,202)

c. Clinical Translational Research Infrastructure Network (CTR-IN) Award (2020) An air quality-focused personnel intervention to improve health among nursing home residents. Department of Health and Human Services Public Health Services, Mountain West Clinical Translational Research Infrastructure Network. (Collaborator; $66,000)

3 Technical Project Support

A few recently awarded projects are listed here.

HCRI FEMA RiskMap Award (2022-2024) Humanizing Flood and Other Hazard Data for Use in Local Resilience Planning (Co-PI; $251,590) – Supports HCRI doctoral student

4 Contract Support

A few recently contracted projects are listed here.

a. City of Kamiah, Idaho (2022) Resilience Assessment and Facilitation of Flood Mitigation Technical Working Group (funded through regional FEMA Hazard Mitigation grant to the City of Kamiah) (PI; $15,956)

b. Ventura County Regional Firesafe Council (2021-2022) Developing and evaluating wildfire place-based and evidence-based wildfire educational materials (PI; $16,076)

c. Funded HCRI and Idaho Policy Institute contract from United Policyholders Nonprofit Incorporated (2022-2023) Evaluation of United Policyholders Metrics and Data Collection (Collaborator; $26,263)

5 Raise funding to provide seed grants to Boise State research teams

As an example, in 2020 we provided funding for the following projects:

a. Economic Valuation of Greenbelt: Evidence from Property Values in Boise. Jayash Paudel, Assistant Professor, Department of Economics

b. Building Community Resilience with an Air Quality Communication Strategy Aimed at Enhancing Elder Care. Luke Montrose, Assistant Professor, School of Public and Population Health

c. Resilient Landscapes and Livelihoods Through Better Conservation Planning (Pemba Island, Tanzania) Matt Clark, M.S. student in Human Environment Systems. Advisor: Vicken Hillis

d. Climate change, wildfire, and adaptive watershed management in Idaho Tao Huang, M.S. student in Human Environment Systems. Advisor: Megan Cattau

Research Activities as the Primary Classification

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Peer-reviewed publication of research activities	Internal and external research community	# of publications	Executive team members should be lead or co-author on at least one publication per year; MS students expected to publish one paper; PhD students expected to publish three papers	Research Activities		
Research translated for decision making through diverse communication strategies	Community partners	# of tools or web pages developed	≥2	Research Activities	Community Engagement and Partnerships	
Number of grants and contracts submitted per year that fall under sponsored projects	University; Faculty Workload Contribution and Promotion Expectation	PI or Co-PI on ≥2 grant proposals per year PI or Co-PI on ≥1 contract opportunities per year	≥2	Research Activities	Diversity of funding	Educational Access and Student Success
Number of grants and contracts awarded per year that fall under sponsored projects	University; Faculty workload contribution and promotion expectation; Persons funded through the grant	≥2 awarded grants or contracts per year	≥1	Research Activities	Diversity of funding	Educational Access and Student Success
Number of grants and contracts submitted per year that fall under 'other sponsored projects'	University; Faculty Workload Contribution and Promotion Expectation	PI or Co-PI on ≥2 grant proposals per year PI or Co-PI on ≥1 contract opportunities per year	≥2	Diversity of funding	Community Engagement and Partnership	Educational Access and Student Success

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Number of grants and contracts awarded per year that fall under 'other sponsored projects'	University; Faculty workload contribution and promotion expectation; Persons funded through the grant	≥2 awarded grants or contracts per year	≥1	Diversity of funding	Community Engagement and Partnership	Educational Access and Student Success
Number of community-engaged projects	Boise State Faculty, Research Faculty, Students; Community Partners	# of community-engaged projects	≥2	Research Activities (if research-oriented)	Community Engagement and Partnerships	Diversity of funding
Community partner project evaluations	HCRI Leadership for program improvement	We expect a ranking of satisfied to highly satisfied on a five-point Likert scale assessing project satisfaction.		Research Activities	Community Engagement and Partnerships	
Providing assistance in developing inter-disciplinary, community engaged projects (project brainstorming activities; researcher-to-researcher and researcher-to-community partner team building; project development and proposal review)	Boise State Faculty, Research Faculty, Students; Community Partners	# of projects initiated	≥3	Research Activities	Community Engagement and Partnerships	Educational Access and Student Success
Expansion of our resilience assessment and strategy work for rural communities	Cities across Idaho	Development of an NSF Proposal to expand the work; Number of communities engaged per year	1 proposal per year until funded; 1 community per year until program can be expanded	Research Activities	Community Engagement and Partnerships	Educational Access and Student Success

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Presentations, panel participation, or workshops convened by HCRI Executive Team	External researchers and/or community partners; Faculty workload contribution and promotion expectation; Faculty professional development	# of HCRI-related presentations, panel participation, or workshops convened by HCRI Executive Team (special note for invited presentations)	≥1 conference presentations or panel engagements per HCRI Executive Team member	Research Activities	Community Engagement and Partnerships	
Presentations by HCRI students (including participation as a panelist or speaker)	External researchers and/or community partners; Student professional development	# of presentations by HCRI students (including participation as a panelist or speaker)	≥1 conference presentations or panel engagements per student	Research Activities	Educational Access and Student Success	Community Engagement and Partnerships
Diversity of funding to institute	HCRI operations and mission	# of different funding types acquired	≥2	Research Activities (if research-oriented)	Diversity of funding	
Seed funding for research (offered when available)	Boise State Faculty, Research Faculty, and Students	$ total amount available for seed funds; number of projects funded per year (Note: this is based on university or philanthropic support and is not offered annually)	As resources are available	Research Activities	Diversity of funding	

Educational Access and Student Success as the Primary Classification

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Number of graduate students supported through grants and contracts (evidence of expanding capacity)	Graduate student training; Faculty advisors	Support for one new graduate student expected per year	≥1 new student each year	Educational Access and Student Success	Research Activities	
Number of HCRI graduate students advised or co-advised per year	Graduate student training; Faculty advisors	# of students (and retention across semesters)	≥1 graduate student(s) per year (in an advising or co-advising role)	Educational Access and Student Success	Research Activities	
Co-instruction of VIP course with 4-6 students per year	Faculty instructors; VIP students; community partners	# of students (and retention across semesters)	Co-instruction of VIP course with 4-6 students per year	Educational Access and Student Success	Community Engagement and Partnerships	
VIP Course Evaluations	VIP instructors for course improvement	VIP course evaluations	We expect a ranking of satisfied to highly satisfied on a five-point Likert scale assessing event satisfaction.	Educational Access and Student Success		
Opportunities for student research through VIP courses and graduate opportunities	Faculty advisors; VIP students; community partners	# of communities engaged	≥1 new community per year	Educational Access and Student Success	Research Activities	Community Engagement and Partnerships
Promoting courses and programs with a resilience-focused lens through our member profiles	HCRI Members	# of member profiles; # of new member profiles each semester	≥2 new profiles per year	Educational Access and Student Success	Community Engagement and Partnerships	
Providing feedback on education or informational materials with an emphasis on communication best practices (visuals, language)	Boise State Faculty, Research Faculty, Students; Community Partners	# of requests for feedback	as needed	Educational Access and Student Success	Community Engagement and Partnerships	Research Activities

Community Engagement and Partnerships as the Primary Classification

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Learning events, such as facilitated panels or conferences, where researchers and practitioners share current project, needs, challenges, and potential pathways toward solutions	Boise State Faculty, Research Faculty, Students; Community Partners	# of events	A minimum of 6 panels or other learning events per year	Community Engagement and Partnerships	Research Activities	
Networking events with a focus on building community	Boise State Faculty, Research Faculty, Students; Community Partners	# of events	≥2	Community Engagement and Partnerships		
Resilience Conference	Boise State Faculty, Research Faculty, Students; Community Partners	# of conferences every two years	1 every two years; # of attendees at events and diversity of attendees with respect to discipline and sector	Community Engagement and Partnerships	Research Activities	
Event Evaluations (all events)	HCRI leadership and event leads for program improvement	Post-event survey	We expect a ranking of satisfied to highly satisfied on a five-point Likert scale assessing event satisfaction	Community Engagement and Partnerships		
Engaging university community members to build community, initiate projects and/or expand ongoing projects	Boise State Faculty, Research Faculty, Students; Community Partners	# of university community members engaged through meetings, workshops, and panels (tracked through an activity log)	≥150 (based on past activities)	Community Engagement and Partnerships		

Activities and Services	To Whom Service are Provided	HCRI BluePrint Assessments for Quality and Effectiveness (on a per year basis)	Minimum Expectation (on a per year basis)	Primary Classification	Secondary Classification	Tertiary Classification
Engaging external community members to build community, initiate projects and/or expand ongoing projects	Boise State Faculty, Research Faculty, Students; Community Partners	# of community members engaged through meetings, workshops, and panels (tracked through an activity log)	≥300 (based on past activities)	Community Engagement and Partnerships		
VIP Community Partner Evaluations	HCRI Leadership and VIP instructors for course improvement	Community partner survey	We expect a ranking of satisfied to highly satisfied on a five-point Likert scale assessing event satisfaction	Community Engagement and Partnerships	Educational Access and Student Success	
Grant opportunity and event announcements	Boise State Faculty, Research Faculty, and Students	Service provided but not tracked	N/A	Community Engagement and Partnerships	Educational Access and Student Success	
Faculty member profiles on HCRI website to share research, collaboration interest, courses offered, and increase visibility	HCRI Members and Friends	# of member profiles; # of new member profiles each semester	≥2	Community Engagement and Partnerships		
Student member profiles on HCRI website to share research, collaboration interest, network, and increase visibility	HCRI Members and Friends	# of member profiles; # of new member profiles each semester	≥2	Community Engagement and Partnerships	Educational Access and Student Success	

Alignment with **University** and **Community Values**

Alignment with Boise State University Blueprint

The HCRI **Advances Research Activities** at Boise State through interdisciplinary approaches, breaking down disciplinary and sector silos to address pressing societal problems and aligning well with the Grand Challenge Resource Nexus for Sustainability and Healthy Idaho initiatives.

Our focus on interdisciplinary, community-engaged, solutions oriented research projects will help to foster and sustain a vibrant research culture across all academic units on campus.

We improve **educational access and student success** by engaging students in community based projects through our VIP Building Resilient Communities course, open to any discipline, and through graduate research opportunities.

Our efforts to **advance high-impact learning practices through experiential learning and service learning activities** contribute to student retention[7] and career readiness.

Research projects through our resilience program would benefit and is appropriate for graduate and undergraduate students in:

- **College of Arts and Sciences**
- **College of Business and Economics**
- **College of Engineering**
- **School of Public Service**
- **School of Population and Public Health**
- **School of the Environment**
- **Human Environment Systems**
- **Masters of Environmental Management (proposed)**

Our development of resilience data sharing tools for planners and decision-makers and planned use of data application programming interface (through collaborations with the Computer Science department) and visualization techniques to create an interactive digital decision technology tool supports Innovation for Institutional Impact and may be transferable to other disciplines and applications.

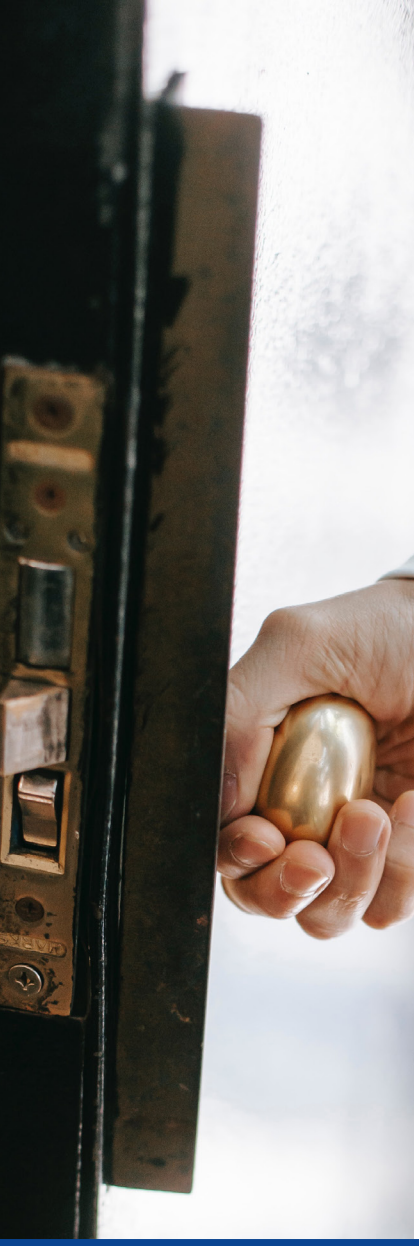
Finally, our community-engaged efforts Trailblaze Programs and Partnerships by creating sustainable, long-lasting research relationships with Idaho stakeholders with an emphasis on serving rural Idaho.

Our efforts to connect across disciplines and sectors build a resilience community of practice. Of particular importance is our engagement of rural communities in resilience assessments and strategies, which increases their capacity and ability to proactively improve their communities while preparing for future disruptive events.

Value Added for Boise State University

The HCRI provides Boise State faculty and staff with visibility, new avenues for research, and opportunities to engage in interdisciplinary, community-engaged scholarship: Becoming a member of the HCRI provides value to faculty and research staff through:

- Interdisciplinary, project teaming support to connect researchers across campus
- Community engagement. project teaming support to connect researches and community partners to promote community-engaged scholarship
- Facilitation services to help new teams establish shared values, project vision, and a positive working relationship
- Project-specific development support (brainstorming activities, grant writing)
- Showcasing research focus, collaborative interests, and courses offerings of HCRI members and partners on our website



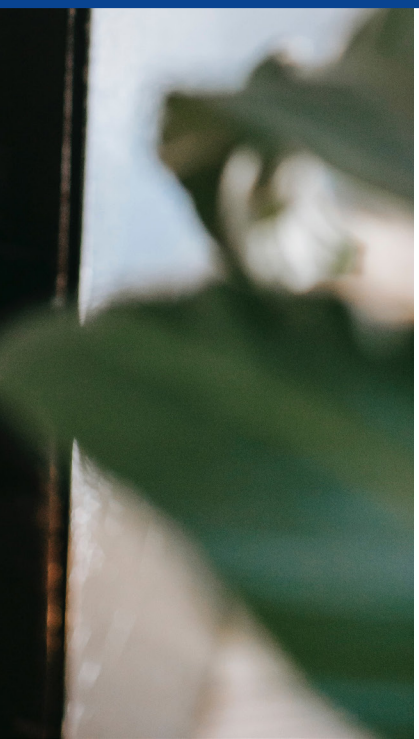
This exposure and focus on promoting interdisciplinary, community-engaged research increases research funding for solutions-oriented projects, which is assessed through number and types of publications (e.g., white papers, public dashboards, journal articles, conference proceedings) and number of awards and contracts.

The HCRI offers Boise State students opportunities to engage in applied, solutions-oriented and community engaged research. Our VIP Building Resilient Communities course offers 200-, 400-, and 500-level students the opportunity to work on resilience projects with Idaho communities.

The HCRI research focus provides opportunities for graduate-level thesis and dissertation research that advances resilience and sustainability science while providing data and evidence-based solutions to address community resilience challenges in Idaho and beyond. These efforts are assessed by the number of students engaged, course evaluations, student publications, and community partner project satisfaction surveys.

A long-term goal of the HCRI is to offer academic programming in disaster science and emergency management, which would also increase research opportunities, student enrollment, and tuition revenue to the university.

Value Added for Community Partners



HCRI efforts leverage Boise State expertise and resources to promote community resilience in Idaho and beyond.

We are dedicated to building relationships and trust with Idaho communities, stakeholders, and tribal rights holders.

By engaging in two-way conversations and providing opportunities to connect, listen and learn we strive to build a resilience and sustainability community of practice. We are an open door for community partners to request research support on problems they do not have the capacity or expertise to address alone.

Broader Impact - Creating a Resilience Community of Practice

The HCRI's goal is to connect across disciplines, sectors, and people to create resilient and thriving communities.

Implicit in this goal are research and scholarly activities that go beyond traditional scopes and boundaries to develop long-lasting relationships between Boise State University faculty and students, other universities, and Idaho communities.

These connections represent a Resilience Community of Practice. Through this, we aim to disseminate information using both traditional (e.g., articles, white papers, presentations) and non-traditional channels (e.g., community meetings, conversations, and decision-making tools).

We believe our strategy can be a model for other institutions/states to adopt and serves as a way to leverage university resources for community good.

Annual Schedule (subject to change)

Fall

- **Kick-off meeting with Executive Team and Advisory Board to distribute workload and initiatives across our group**
- **Operations Annual Planning**
  - Website and profile updates (request updates from current members to ensure website is accurate)
  - New project submission drive
  - New membership drive
- **Community Engagement Annual Planning**
  - Fall networking event with HCRI members and friends
  - Annual planning for community engagement panels and events, including a biannual Resilience Conference
- **Annual Initiatives Planning**
  - Establish project-specific goals and a timeline
  - Project coordination

Spring

- **Operations**
  - February Reporting: We will collect data from our Executive Team at the same time as the university annual reporting in Faculty180 is due. At this time our Executive Team faculty will allocate the FTE they plan to commit to the HCRI for the following year, and negotiate the FTE with their respective chair and dean.
  - Integration of report into appropriate documents for short and long term tracking

- **Community Engagement**
  - Maintain ongoing engagement
  - End of year event (either a Resilience Conference or a more targeted event that engaged our internal and external community)
- **Annual Initiatives**
  - Maintain initiatives
  - Prepare summaries and next steps
- **April annual planning exercise with Executive Team and Advisory Board to establish the next year's initiatives and how they align with faculty dedicated FTE and graduate student support**

Summer

- **One-on-one fun meetings with leadership**

FY24 **Objectives**

Foster community and connections

- Host monthly, community-directed events for community and university partners
- Host networking events and participate in external panels and conferences with the purpose of listening, learning, and connecting
- Create a calendar of internal and external events for HCRI faculty and students to attend

Lead community-based resilience assessments & resilience strategies

- Continue working with the City of Kamiah (Idaho) on economic, housing, infrastructure, and flood resilience projects
- Initiate a resilience project with a new city in Fall 2023 (through our VIP class)

Develop tools with and for planners and decision makers

- Work with Valley County (Idaho) on our FEMA RiskMap project to assimilate datasets into a single interface to promote informed decision making
- Create and publish a model for developing similar tools for communities across Idaho

Address data gaps and research needs

- Publish a paper on our resilience strategy approach
- Submit proposal to NSF for building rural community resilience assessments and strategies
- Lead the Boise State Resource Nexus for Sustainability efforts and funding opportunity to support interdisciplinary, community engaged research projects
- Lead the state Hazards Technical Working Group
- Explore necessary next steps in hazard research through our university and external community partners and write white papers to prepare for future projects and grant opportunities

Offer diverse education and research opportunities for Boise State students across all disciplines

- VIP Building Resilient Communities course (every semester)
- Student-centered project to complete a seismic vulnerability analysis in Eastern Idaho (subcontract through Tetra Tech)
- Direct research for 1-2 graduate students on HCRI-relevant, interdisciplinary, community engaged, solutions-oriented projects

Acquire an array of resources and funding to support a sustainable institute

- Pursue funding through national science foundation grants for research projects
- Raise $9000 to support an international student through the summer and $5000 to support an HCRI intern through the university or philanthropic sources
- Create a new model for funding city resilience assessments

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