Cover Memo

Please provide a description and highlights from all previous annual reports since your last periodic review.

Ancillary Unit Periodic Review
Reporting Period: ___2022-2023____

Deadline for submission to Reporting Administrator: October 30

This report is required by FAM 105.4 – POLICY GUIDELINES FOR THE FORMATION AND REVIEW OF CSUSB ANCILLARY UNITS

Basic Information

Ancillary Unit's name	Institute for Watershed Resiliency
Director(s)	Dr. Jennifer Alford
Administrator to whom the unit reports ("Reporting Administrator")	
Purpose and goals of the Ancillary Unit (from the original proposal or updated operating documents)	

Advisory Board

Please list your current Advisory Board, their positions outside the Advisory Board, and their roles on the Advisory Board (if applicable)	

Ancillary Unit Activity

Please summarize the top three (3) accomplishments of your Ancillary Unit (AU) during this reporting period. This should highlight the substantive activities that support and advance the purpose/goals of the AU, and the relationship between the activities and the purpose/goals.

Please highlight the most significant activities of the AU that engage the community or other entities on campus, if any.

Substantive Activities undertaken by the AU during reporting period

Activity (please describe)	Funds spent	Goal advanced (and extent)

Describe planned activities for the current academic year and how each of them will advance the purpose/goals of the AU.

Planned Activity	Connection to Purpose

Complete the Annual Use of Funds form

	Year 1		Year 2		Year 3	
	Internal	**External**	**Internal**	**External**	**Internal**	**External**
Salaries	$ $ 7,200	$ $296,090*	$ $ 77,000	$ $ 120,000	$	$
Assigned Time	$ $ 13,200	$ $ 9,424	$ 0	$ $ 42,800	$	$
Travel	$ 0	$ 0	$ 0	$ 0	$	$
Supplies	$	$ $26,740	$	$ $ 28,600	$	$
Contractual	$	$	$	$	$	$
Other*	$	$ $827,124	$	$ $ 100,000	$	$

TOTAL	$	$	$	$	$	$

*Other can include items such as: *External Contracts, Grants, Sponsorships, Marketing and Outreach, Communications, Data Processing, Facilitates Operation, Printing, Postage*

Additional Attachments

📎

Certification

Dr. Jennifer Alford
_____

Director Name

Jennifer Alford
_____

Director Signature

Unit Reporting Person recommendation	
Name and title: Cynthia Crawford, Interim AVP for Research	
Recommendation:	Active

Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary.

Cynthia Crawford
_____

Unit Reporting Person Signature

Mar 3, 2024
_____

Date

Committee for Centers and Institutes recommendation	
Recommendation:	Active

Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:

Mar 29, 2024

_____

CCI Chair Signature   **Date**

Provost recommendation	
Recommendation:	

Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:

_____   _____

Provost Signature   **Date**

President decision	
Decision:	
Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:	

_____   _____

President Signature   **Date**

Ancillary Unit Annual Report Institute for Watershed Resiliency 2022-2023

Please note the Water Resources Institute was dissolved and the Faculty Senate was notified of this change. The Institute for Watershed Resiliency (IWR) was formally established in Spring 2023 is report also includes work for the CSU WATER CSU systemwide affinity group.

Deadline: October 30th

This report is required by [FAM 570 (FSD 87-17.R5) -- POLICY GUIDELINES FOR THE FORMATION AND REVIEW OF INSTITUTES AND CENTERS](). The report is due by October 30th of each year. **Please make sure to sign and forward scanned signed copies of the report. Thank you.

Table 1. Basic Information

Basic Information	
Ancillary Unit's name	Institute for Watershed Resiliency (IWR)
Director	Jennifer Alford, PhD
Administrator to whom the unit reports	Dorota Huizinga, PhD, Associate Provost for Research Cynthia Crawford, PhD, Interim Associate Provost for Research Appointed Summer 2023
Purpose and current goals (as approved by Faculty Senate)	The IWR was established in the Spring of 2023. (please see attached IWR establishment proposal) The IWR's mission is to lead and advocate for community-university partnerships that seek to mitigate and resolve complex water resources issues across diverse social, economic and environmental landscapes through environmental education and stewardship. To adequately address watershed level community needs requires an interdisciplinary approach to water resource issues. The primary objectives of the IWR include: - Promote, develop, and sustain activities that mitigate water-centric issues across social, economic, environmental landscapes through interdisciplinary learning, service and research. - Develop and facilitate collaborative agency-university workforce and professional development opportunities for students, educators, and community resource practitioners. - Build, lead, and sustain partnerships and collaborations that provide resources for IWR program focus areas. - Elevate best practices and innovations that support activities to promote the equity of water resources across watershed landscapes.

Table 2. Advisory Board

Advisory Board 2022-2023	
Dr. Rafik Mohamed	Provost, CSUSB
Dr. Diane Podolske	Director, CSUSB Office of Community Engagement
Jennifer (Jenny) Sorenson	Vice President, CSUSB Facilities and Planning Management
Heather Dyer	General Manager, San Bernardino Valley Municipal Water District
Randall Reed	President, Cucamonga Valley Water District Board of Directors (CSUSB Alumni)
Jason Collier	US Forest Service, Environmental Programs Lead
Mandy Parkes	Director, Inland Empire Resources Conservation District (IERCD)
Stacy Giron	Executive Director, Southern California Mountains Foundation
Denis Charbonneau	Rivers and Lands Conservancy, Land Steward (CSUSB Alumni)
Jose Mora	IERCD Mitigation Program Lead (CSUSB Alumni)
Kelley Giron	US Forest Service Natural Resources Specialists (CSUSB M.S. Environmental Studies, Graduate Student)
Christine Seeger	US Forest Service Enterprise Hydrology Specialists (CSUSB M.A. Interdisciplinary Studies, Graduate Student)

Table 3. 2022-2023 IWR Activities Summary

Activities during previous academic year (2022 - 2023) CSUSB IWR		
Activity (please describe)	**Funds spent**	**Goal advanced (and extent)**
CSUSB Institute for Watershed Resiliency Establishment Developed proposal for establishing a new Institute for Watershed Resiliency. Presented to numerous academic and community entities to solicit feedback that was incorporated into the final proposal, program development and organizational administrative and operational infrastructure. Established program areas as a framework to partner with local and regional natural resources agencies. Adopt logo and marketing strategy. Develop proposals for funding through established community-	$0	Establishment of IWR mission, goals and objectives to align with community partner organization and student workforce development/learning needs around water-centric issues. IWR goals and objectives align with CSUSB strategic goals including student success (#1), faculty and student success (#2), resource sustainability and expansion (#3), and community partnerships (#4). Developed IWR marketing and branding materials. Applied to numerous grant applications. Developed proposals for program area funding.

partipartnerships.

Established the Geospatial Engagement Learning (GEL) Lab- 5 GIS high capacity computer workstations are now available in the IWR office space to support students and faculty geospatial learning and research activities.

IWR worked with library staff to develop an online reservation system available on the CSUSB library website.

Submitted grant proposals to fund program and IWR objectives.

Attachment A IWR Establishment Proposal

Attachment B IWR 2022-2023 Grant Activity

San Bernardino Valley Municipal Water District "Regional Water Fellows Program" Develop and present a proposal to the SBVMWD General Manager and Board of Directors to fund multiple student fellow workforce and professional development opportunities.	$0	The development of the fellowship program seeks to support student funded fellowship opportunities that expose students to diverse water-centric careers through field-based learning, data analysis and related professional development opportunities. See **Attachment B** for funding proposal request (~$99,000)
IERCD Community-Based Forest Resiliency Proposal Year 1 Dr. Alford served as PI for the year 1 phase 1 IERCD Community-Based Forest Resiliency Proposal. Funding is provided through IERCD to CSUSB (lead) and subcontracted with CSUN by the CA Department of Conservation Regional Forest and Fire Capacity (RFFC) program. **Attachment C** IERCD Community-Based Forest Resiliency Proposal Year 1	$56,466	Collective efforts include designing and completing a database gap analysis (Task 1) and community outreach and engagement related to first conditions, data collection, analysis and community outreach (Task 2).

Chino and Cucamonga Basin Student Internship Program Administration Provided administrative support for four student interns in partnership with Chino Basin Water Conservation District (3 students) and Cucamonga Valley Municipal Water District (1 student).	$30,000	Administrative support funded student workforce development to explore water-centric careers through diverse, interdisciplinary activities at the Chino Water Basin.
Field-based Learning, Outreach, & Workforce Scholarship (FLOWs) Field School Program Developed and presented FLOWS field school proposal to three campus faculty, centers and Presidents to solicit curriculum, community engagement and fiscal support for 2023-2024 pilot year. Program represents the first water-centric multi-campus field school established in the CSU system. **Attachment D** FLOWS Establishment Proposal	$0	FLOWS will provide workforce/professional development operations across research and service learning opportunities for CSU students and faculty through engaged partnerships with local, regional and state water resource practitioners and Tribal leadership. The focus for the experiences will be community and ecological water issues and solutions across the coast, mountain, valley and desert regions of California. Learning objectives will enable students to build workforce development and community engagement based skill sets that apply curriculum knowledge to real-world applications. Activities will enable participants to become more well rounded, interdisciplinary researchers, practitioners, and water stewards. Collective efforts will directly *address multiple components of the CSU and CSUSB Strategic Plans* including student and faculty success; community stewardship and partnerships, applied research experiences and workforce development.
Coachella Valley & Salton Sea Regional Internship Collaborated with Dr. Michael Karp (History, PDC) to develop a student internship opportunity that explored avenues for community engagement in the Coachella Valley region. Intern activities to include community stakeholder outreach, historical archives research, database and marketing materials development to promote environmental issues in the	$4,000	The Salton Sea internship enabled a PDC student intern to assist two faculty members with identifying, collecting and disseminating data related to natural resources based environmental justice issues in the Coachella Valley region. Efforts included direct stakeholder outreach, archival research and database development.

region.

Activity (please describe)	Funds spent	Goal advanced (and extent)
IWR Community Engagement Internship Supported one student intern at the San Bernardino campus who assisted community partner and faculty expertise/course database development and with website development.	$7,200	Student support outreach and marketing efforts related to IWR programs, development of the website and Geospatial Engaged Learning (GEL) Lab.
IWR GIS Water Agency Mapping Internships Funded two San Bernardino campus internships to assist with developing online mapping applications to support ushered with locating local, regional and state water agencies.	$4,500	Activities resulted in an online mapping application (ArcGIS) that displays local, regional and state water agency service areas. Mapping applications will be used to support community engagement, fundraising efforts and related IWR projects, goals and objectives.

Table 4. CSU WATER 2022-2023 Activities Summary

Activities during previous academic year (2022 - 2023) CSU WATER		
Activity (please describe)	**Funds spent**	**Goal advanced (and extent)**
Associate Director of Research, CSU Water Advocacy Towards Education and Research (CSU WATER) - Dr. Jennifer Alford was appointed the **CSU WATER Associate Director for Research** (previously WRPI). The Executive Director position was moved back to CSU Fresno State when Boykin Witherspoon retired. In addition to supporting the transition to manage the CSU WATER Faculty Incentive Program (FIP) at the CSUSB campus, Dr. Alford served on the CSU WATER Interim Advisory group, Conference Committee, CSU WATER Executive Director search committee, and	$ 41,100	Sound research, analysis, student workforce development, faculty support and community engagement. Dr. Alford worked with colleagues to support the transition from WRPI to CSU WATER. WRPI was renamed CSU WATER to focus on student and faculty success through education, workforce development and research that benefits the communities that CSUs support across California. The CSU WATER Faculty Incentive Program (FIP) was transitioned from the CSU Fresno campus to CSUS. The FIP includes over **$100,000** in support for faculty research, student mentorship, community partnership engagement and grant application activities. Additionally, Dr. Alford worked with the CSU WATER Interim Executive Director to develop an outreach and networking framework which included

represented CSU WATER at local, regional and state conferences, events and workshops.		developing a campus representative program across all 23 CSU campuses and expanding the faculty and community expertise network to facilitate more partnerships, recognition and funding opportunities.
Principal Investigator, Lead Consultant Performed California Department of Water Resources Disadvantaged Communities Involvement Program (CA DWR DACIP). Fourth year of Task 3, and second year of Task 3 and 4 for the DWR West Basin, Upper Santa Clara River, and Ventura County Technical Assistant Grant.	Performed $132,822 of grant (total grant award $3.4m)	Sound research and analysis through a CA Department of Water Resources Disadvantaged Communities (DAC) Involvement grant program for Ventura, Los Angeles and the Upper Santa Clara river basins. Dr. Jennifer Alford assumed the PI/Lead Consultant role from the Ventura and Upper Santa Clara regions when Boykin Witherspoon retired. The WaterTalks program identifies and positions state funds to tackle diverse water related needs in DACs and Tribal communities including infrastructure, education and community capacity building between water agencies and DAC and Tribal communities. Task 3 and 4 activities included overseeing funding projects, supporting Tribal-Agency-Community engagement, website development, public presentations and database analysis, technical reports and attending partner meetings.Dr. Alford also coordinated Tribal community activities and reporting for the Ventura and the Upper Santa Clara basins.

Table 5. Use of Funds

	Use of funds			
	Internal funds		External funds	
	Previous academic year	Current academic year (projected)	Previous academic year	Current academic year (projected)
A. Salaries	$ 7,200	$ 77,000	$296,090*	$ 120,000
B. Assigned time	$ 13,200	$ 0	$ 9,424	$ 42,800
C. Telephone/fax	$ 0	$ 0	$ 567	$ 1,400
D. Office supplies	$ 0	$ 0	$26,740	$ 28,600
E. Other	$ 0	$ 0	$827,124	$ 100,000
Total	$ 20,400	$ 77,000	$1,159,378*	$ 292,800
*DACIP grant activities will end December 2023.				

_____

Please also describe planned activities for the current academic year:

Table 6. 2023-2024 IWR Planned Activities

Planned Activities Current Academic Year (2023-2024) CSUSB IWR		
Activity (please describe)	**Funds spent (External)**	**Goal advanced**
IWR Program Sustainability & Funding Expansion Conduct outreach, presentations and partnership sustainability to promote the value of IWR programs ot student learning, environmental stewardship and workforce development. Conduct presentation to 5 new potential funding agencies to position IWR for funding proposal requests in Spring 2024.	$0	Resource expansion to support multiple CSUSB strategic goals and objectives including student success (#1), faculty and student success (#2), resource sustainability and expansion (#3), and community partnerships (#4). Efforts include internal (i.e. CSUSB) collaborations with the Cyber Security Apprenticeship program, Office of Community Engagement, Advancement, Enrollment and the Office of Sustainability. External efforts include outreach and partnership expansion across federal, regional and local natural resources agencies and nonprofits. Target funding goal $250,000
Community-Based Forest Resiliency San Bernardino National Forest, California Complete Phase 1/Year 1 of IERCD grant by December 31, 2023.	$40,000	Community-University partnership engagement, community resiliency, community-based research and,student workforce development.
Community-Based Forest Resiliency San Bernardino National Forest, California IERCD Year 2 implementation. Estimated start date January 2024.	$0	Community-University partnership engagement, community resiliency, community-based research and,student workforce development. The proposal includes community and agency survey tool deployment, data collection, analysis, reporting and educational materials. . *Proposal will be presented to the

		IERCD Board in December 2023 or January 2024. Funding is estimated until formally approved. Funding request: $229,000
FLOWS Program Funding Development Pursue funding of FLOWS off-campus field school program for students from 3 CSU campuses. *Pursuing additional external funding of $120,000.	$0	FLOWS will provide workforce/professional development operations across research and service learning opportunities for CSU students and faculty through engaged partnerships with local, regional and state water resource practitioners and Tribal leadership. The focus for the experiences will be community and ecological water issues and solutions across the coast, mountain, valley and desert regions of California. *Funding goal of $120,000 to fund 2024-2025 FLOWS program administrative, curriculum, community engagement and research efforts.
San Bernardino Valley Municipal Water District "Regional Water Fellows Program" Expand the program to support more student funded fellowship positions and professional development opportunities.	$99,750	Provide experiential learning to prepare students for careers. Improve donor and community relations.

Table 7. 2023-2024 CSU WATER Planned Activities

Planned Activities Current Academic Year (2023-2024) CSU WATER		
Activity (please describe)	**Funds spent (External)**	**Goal advanced**
Associate Director of Research, CSU Water Advocacy Towards Education and Research (CSU WATER) Dr. Alford will continue to serve as the Associate Director of Research for CSU WATER. She will manage and oversee the implementation/administration of the Faculty Incentive Program	$45,000	Leadership, facilitation and sustainability of interdisciplinary research, cross CSU campus collaborations, community partnership engagement, student workforce development. Collective activities meet several of the strategic goals of the CSU Chancellor's Office and CSUSB.

($100,000), support annual conference coordination and		
Principal Investigator, Lead Consultant Performed California Department of Water Resources Disadvantaged Communities Involvement Program (CA DWR DACIP). Complete task 4 Ventura County and Upper Santa Clara County West Basin Disadvantaged Communities Grant.Grant activities concluded December 2023 with administrative task concluding in March 2023..	$150,000	Provide experiential learning to prepare students for careers. Sound research and analysis

Jennifer Alford

Director Signature

Unit Reporting Person recommendation	
Name and title:	
	Keep on active status.
	Move to probationary status.
	Move to inactive status.
<mark>Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:</mark>	

Unit Reporting Person Signature   **Date**

Educational Policy and Resources Committee recommendation (Only after 3 or 5 year review)	
	Keep on active status.
	Move to probationary status.
	Move to inactive status.
<mark>Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:</mark>	

EPRC Chair Signature   **Date**

Provost recommendation (Only after 3 or 5 year review)

	Keep on active status.
	Move to probationary status.
	Move to inactive status.
<mark>Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:</mark>	

Provost Signature   **Date**

President decision (Only after 3 or 5 year review)	
	Keep on active status.
	Move to probationary status.
	Move to inactive status.
<mark>Recommendations and comments including the criteria and data reviewed. Please attach additional page(s) as necessary:</mark>	

President Signature   **Date**

Attachment A
IWR Establishment Proposal

<div align="center">

California State University San Bernardino
Institute for Watershed Resiliency (IWR)
Establishment Proposal
(Formally the CSUSB Water Resources Institute)

</div>

Annual Year 2022-2023 Institutional Establishment
Submitted by: Jennifer Alford, Director Institute for Watershed Resiliency

Justification for Institution Transition: Institute for Watershed Resiliency (IWR)
The Water Resources Institute (WRI) has a long history at CSUSB and while beneficial, the changing focus areas the WRI has assumed over the years coupled with the emerging need for water based organizations to bridge an aging workforce with recent graduates who represent interdisciplinary perspectives about water resources warrants a restructuring of the institution.

The need to reimagine this institution was informed over several years of interacting with community partners, students, faculty and community-university research and programming. Community-university feedback reflects spatially diverse community water resource issues, the need for adaptive management strategies, and an evolving need to train students prior to graduation so that they are workforce ready. These needs illuminate the desire of agencies and community organizations to collaborate with CSUSB students, faculty, and staff to resolve evolving water resource issues.

To adequately address community needs requires interdisciplinary approaches to water resources across dynamic watershed setting that adequately:

o <u>Approach</u> water through community-university collaborative, applied & engaging learning activities that encompass community level social, economic, & environmental factors.
o <u>Ensure</u> students are workforce ready by providing diverse university-community water-centric high impact practices across teaching, research & service.
o <u>Situating</u> CSUSB as a community resource Hub by developing & implementing interdisciplinary, innovation & applied approaches to water resource based knowledge.

As a result, reimaging the WRI to the Institute for Watershed Resiliency (IWR) would allow CSUSB to be well positioned in the community to lead collaborative and engaging activities aimed at community-based climate resilience through a water lens. Mechanisms for engagement include University-Community Partnerships, student centric programming, and creating diverse workforce activities that prepare students for employment. To facilitate feedback loops, the IWR will develop and adopt a governance structure that includes a Campus-Community Advisory Council consisting of community, students, faculty, and staff.

Programming Focus Areas

Watershed Resiliency Career Pathways (WRCP)

The WRCP provides students with a multi-tiered learning pathway that empowers them through diverse opportunities to increase their understanding and appreciation of the application of interdisciplinary perspectives in resolving water centric community issues.

Step 1: Service Learning & Workforce Readiness
- Complete a minimum of 10 volunteer hours with a community organization.
- Attend CSUSB Career Center Trainings to develop professional soft skills that enable students to be prepared for professional development and advanced degree opportunities.

Step 2: Community-Centric Apprenticeships
- Focus of apprenticeship activities are aimed at understanding and actively engaging in supporting watershed activities that promote equity and resiliency across community water resource issues.

Step 3: Parallel Learning & Implementation
- WRCP student participants serve as an active and engaged member of a Faculty-Student-Community Research Cohorts.

Step 4: Showcase Student Experience
- WRCP student participants will have opportunities to share experiences with prospective program participants including students, faculty, and community members, to encourage participation, illustrate the value of apprenticeships and fellowship as well as a mechanism to procure and sustain financial support.

Professional Development Incentive Programs (P-DIP)

Provide diverse avenues of financial support that encourages faculty to mentor students across professional development, research, and field experiences as well as utilization of the archives in course curriculum.

<u>Student Professional Development Certificates</u>

Provides funding for students to attend workshops/conferences or complete professional certifications/training including water, California Environmental Quality Act (CEQA) and National Environmental Policy Act and Cultural Resources certifications to name a few.

Faculty-Student-Community Research Collaboration

Provides short term funding support for faculty-student research teams to collaborate with a community partner to develop a research agenda and identify longer term funding support.

Faculty-Student-Community Field Experiences

Support faculty-student-practitioner field experiences that explore the application of field-based interdisciplinary methods to resolving watershed issues.

K-12 & Public Environmental Education Inquiry Curriculum Development

Supports the development of K-12 and public environmental education curricula as well as an interdisciplinary lesson plan database for K-12, public and higher education educators to utilize across teaching efforts in the Inland Empire.

AY 2022-2023 Planned Activities

- Objective 1: Develop Operational & Outreach Framework
  - Work with the Advisory Council to identify and adopt administrative, program and other organizational infrastructure to advance IWR goals and objectives.
  - Develop bi-annual reports to showcase efforts and timeline to reach AY goals.
- Objective 2: Rebranding & Community Outreach
  - Notified university-community partners are of changes and opportunities; encourage participation in IWR framework development.
- Objective 3: Develop Pilot Programming
  - Develop pilot programming and implementation for select program focus areas based on donor fiscal support.
- Objective 4: Establish Geospatial Research & Learning Computer Stations. Geospatial Engagement Lab (GEL) to provide additional student and faculty research technical support and space. Collaborate with library staff to develop GEL reserve a space program.
- Objective 5: Develop branding for the IWR to include a new website, logo, program focus areas, funding sponsorship levels.

- Objective 6: Develop funding objectives and outreach plan to diversi

IWR 2022-2023 Funding Activities 2022-2023

- *Climate Action Seed* **Grant $1,200,000**
    - Proposal focused on supporting the Mountain Lab project.
    - Not funded – over 475 applicants, 30 selected for full proposal; only 2 CSU campuses selected out of 30 submitted proposals by CSU campuses.

- *Impact Grant $99,000*
    - *Support San Bernardino National Forest Hydrological Monitoring Network, Community Capacity Building, and Student Workforce Development.*
    - Not funded.

- *SBNF Hydrology Study Proposal Development $750,000 (5 years)*
    - Submission proposal in partnership with the CSUN Center for Geospatial Technology and the University of Redlands.to Headwaters Resiliency.

- - 5 year proposal to assess meadows, headwater stream, riparian areas, climatic conditions and groundwater.
    - Estimated budget $150,000/year (estimated $750,000 over 5 years)
    - Continue to work with project partners to identify funding sources.

- *State/Federal Funding Earmark (submitted to CSUSB Advancement) $1,000,000*
    - CSUSB Advancement to establish physical space, monitoring, career pathways, professional development, monitoring equipment and related monitoring/community engagement activities.
    - Serves to support the Headwater Resiliency Partnership - includes US Forest Service, SB Valley Municipal Water District, National Forest Foundation, Southern CA Mountains Foundations estimated need ~$1,000,000.
    - Continue to work with CSUSB Advancement to seek funding resources.

- *Environmental & Climate Change Literacy Program Grant (ECCLP) Proposal* $150,000 **(over 2 years)**
    - At the request of the CO and Provost a proposal was developed and submitted for review.
    - Partnerships include the CSUSB Colleges of Education, San Bernardino Unified School Districts & multiple Inland Empire Environmental Resources Agencies.
    - Not funded.

- *Campbell Grant $25,000*
    - Proposal to support IWR program areas.
    - Not funded.

Proposal Example (funded for 2023-2024 year)

San Bernardino Valley Municipal Water District Annual Funding Request Proposal

"Watershed" Level: **Foundational Sponsorship of the Program**

- **$75,000: Student Fellowships**
    - $15,000/student, 5 fellows
    - 40 weeks, 15 hours/week

- **$8,000: Professional Development Incentive Program (P-DIP)**
    - $4,000 Student Professional Development: UCSD CEQA Training Certification
        - $500/student; 8 students
            - 5 student fellows plus 3 additional students on career track
    - $4,000 Educational Opportunities and Professional Development
        - $500/student; 8 students
            - 5 student fellows plus 3 additional students on career track
            - Students will combine funding with other campus funding resources

- **$5,000: Program Development & Student Support**
    - $2,500 Field School Development
    - $2,500 Watershed Planning & Management Certificate Development

- **$7,000: Field Equipment & Development Experiences**
    - $1,250 five student fellows Field Equipment

        o $1,750 five student fellows Field Work and Professional Development Travel

        o $4,000 Field Research Program Equipment, will combine with other funding resources.

- **$4,750: CSUSB Administration**
  - 5% Mandatory for CSUSB Gift Administrative Cost

Request total for this level of sponsorship: $99,750 for Academic Year 2023-2024

Attachment C
IERCD Community-Based Forest Resiliency Proposal Year 1
Funding level $160,000

Proposal Year 1 - Community-Based Forest Resiliency San Bernardino National Forest, California

Year 1: Discovery Phase Objectives
Duration: September 2022 to July 2024

Proposal Project Team:

CSU San Bernardino (CSUSB)
Dr. Jennifer Alford (Project PI, CSUSB Lead)
Associate Professor, Department of Geography and Environmental Studies

Dr. Yolonda Youngs
Associate Professor, Department of Geography and Environmental Studies

CSU Northridge (CSUN)
Danielle Bram (CSUN Lead)

Director, Center for Geospatial Science and Technology

Ben Chou
Project Manager, Center for Geospatial Science and Technology

Project Overview

_____

The San Bernardino National Forest and surrounding foothills communities support various human and ecological activities traversing the headwaters to downstream communities. Although rich in natural resources, mountain ecosystems have been adversely impacted by long term drought conditions and highly variable year-round tourism activities, coupled with inadequate finances to manage diverse environmental and cultural resources. Additionally, both rural and urban communities across this landscape are considered disadvantaged by the State of California indicating they do not have the financial resources to combat reductions in and impairments to environmental resource quality. Collectively, these issues are contributing significantly to compromised forest health, which further increases the likelihood of large-scale, catastrophic fire events, associated loss of resource function, and risk to life and property on a regional scale. However, these risks can be addressed in a meaningful way through a proactive approach to understanding and managing forest resources for increased fire resiliency. This is possible through the design and facilitation of a multi-tiered, interdisciplinary strategy that supports the development of a comprehensive baseline of existing conditions and ranked threats to forest health; natural resource agency and community member input, and active ongoing participation; and a well-informed data-driven priority plan for actions and mechanisms for adaptive management. Following completion, strategic implementation will allow multi-stakeholder collaboration in addressing critical, diverse, and evolving environmental resource management needs.

This proposal seeks to apply field-, geospatial- and community engagement-based research methods, including surveys, outreach and education strategies and geospatial analysis, to develop a framework supporting forest resiliency-focused active and adaptive management. The scale of research, data analysis, and community outreach will drive size and area of the final project, all of which will be located within the San Bernardino National Forest and adjacent foothill communities. Collectively, this approach will benefit current and future residents and resources across diverse cultural and environmental landscapes by providing a suite of deliverables, including evolving datasets, information dashboards, community engagement strategies and publicly available mapping tools.

The completion of the full set of proposed tasks will result in the development of a set of deliverables including a central database designed to inform and focus the work of resource managers and stakeholders on best management practices to support forest resiliency and to limit size, intensity, and frequency of fire events. The database and associated project deliverables funded under this proposal will be part of IERCD's larger set of contractual obligations associated with the District's receipt and management of the Regional Fire and Forestry Capacity-Building (RFFC) block grant. CSUSB and CSUN will host the major project deliverables while providing direct, uninterrupted access to the IERCD; however, the data and tools funded under this proposal may be transitioned to an IERCD-controlled location at the District's discretion.

Task 1. Database Development

   A. **GIS Database Development & Data Gap Analysis**:
         a. <u>Identify Existing Datasets & Data Gaps</u>: Identify existing data from federal, state and

local sources that highlight landscape and demographic community characteristics.

    i. Review datasets with the project team, conduct quality assurance checks, including assessment of spatial and temporal information gaps.

    ii. Review existing imagery (e.g., local, regional, national water archives and historical imagery) that can be utilized to assist with determining forest conditions.

    iii. Work with community stakeholders to identify additional, local research or other datasets.

    iv. Recruit and train students to develop a master list of existing data.

Deliverables:
- Create a geodatabase of existing landscape and climatic datasets for project-based and public users. Create a written summary of the spatial and temporal extent of datasets and related data gaps.
- Identify and document the temporal and spatial extent of San Bernardino National Forest-based USFS historical imagery to determine characteristics of imagery digitized by the USFS Remote Sensing Lab and what gaps exist to plan for future digitization efforts.
- Create an online mapping tool that includes agency and political boundaries, as well as forest-based landscape and climatic datasets that are pertinent to supporting project activities. This will include an internal mapping tool displaying datasets for project-based users (internal) and public facing interactive mapping tools (external).
- Implement student internship opportunities including training, mentoring and oversight to assist with tasks.

b. Identify Disadvantaged Communities (DACs): Identify the geospatial locations and baseline environmental health and socio-economic characteristics of disadvantaged and severely disadvantaged communities across the forest range to assist with understanding resource needs and educational opportunities within DACs and potential external funding opportunities.

    i. Utilize the California Department of Water Resources Disadvantaged Communities Mapping Tool, the California Office of Environmental Health Hazard Assessment CalEnviroScreen Mapping Tool, the EPA's Environmental Justice Mapping Tool and other related resources to identify baseline environmental health and socio-economic characteristics of communities across the mountain range to illustrate and analyze potential resource deficiencies and to ensure they are included in outreach and other engagement activities.

    ii. Recruit and train students to identify, acquire and process relevant datasets.

Deliverables:
- Create a geodatabase of socio-economic data related to disadvantaged and severely disadvantaged communities.
- Identify the geospatial locations and environmental health and socio-economic characteristics of these communities across the forest range.
- Implement student internship opportunities including training, mentoring, and career path engagement to assist with tasks.

c. Identify Community Stakeholder Groups: Identify community stakeholder groups and organizations including public agencies, non-profits, homeowners associations (HOAs) and other related entities.

i. Identify stakeholder types, objectives, activities (e.g., permits, projects, outreach) and locations of those actively working in the San Bernardino National Forest.
ii. Reach out to identified community stakeholders to clarify information including service areas, spheres of influence, project boundaries, organizational objectives and other baseline information.
iii. Recruit and train students to input data into a database.

Deliverables:
- Create a geodatabase of local public agencies, nonprofits and other related groups working across the San Bernardino National Forest.
- Create a stakeholder-based online mapping tool of local public agencies, nonprofits and other organizations working within the San Bernardino Forest boundaries (northwestern territory - Crestline to Big Bear areas). Maps will include organizational boundaries, agency information, objectives and project locations as well as disadvantaged community locations related to organization/agency efforts.
- Implement student internship opportunities including training, mentoring and oversight to assist with tasks.

B. **Forest/Community Field Information Forms:** Objectives include identifying different avenues for data collection, data visualization and mapping applications.
   a. Forest Conditions: Work with Inland Empire Resource Conservation District (IERCD), San Bernardino Valley Municipal Water District (SBVMWD) staff and forestry consultant team to identify key metrics and examples of current forest conditions to be documented in digital information forms linked to online mapping tools.
      i. Identify framework for training modules with examples of forest conditions.
      ii. Develop framework for digital forms (e.g., ESRI's ArcGIS Survey123) to identify forest conditions that will be linked to an online mapping interface, graphic based informational dashboards and a mobile application.
      iii. Consult with ESRI staff to identify current software applications for collecting forest and community data as well as graphical representation of collected data.
      iv. Identify methods to train students and volunteers to utilize forms to document observations of current forest conditions.

Deliverables:
- Create one training module that will be utilized to train staff, students and volunteers to identify current forest conditions.
- Create framework for digital information forms based on health metrics identified by consulting forestry team (e.g., ESRI ArcGIS Survey123, ESRI ArcGIS Field Maps) that will be utilized to collect observed field-based forest conditions.
- Link digital forms to mobile application and collected data to online mapping tools.
- Create and manage an online portal for project partners and community participants to enter collected data into online database including imagery, site locations and notes.

- Collaborate with project partners to adopt a standardized process for verifying and ensuring accuracy for collected data utilizing expertise from project partners (i.e., forest consultant, IERCD staff, USFS staff) and expert community stakeholders.
- Develop list of qualified forestry consultants for IERCD follow up and outreach.
- Identify methods to train students and volunteers to create a community layer of forest health indicators and observations to supplement those created by consulting forestry team.

b. <u>Community Characteristics</u>: Work with project partners to develop survey preliminary survey questions related to perspectives about forest management and submit the survey. This will position project partners to hold focus groups to refine questions in year 2 and submit the survey questions for CSUSB Institutional Review Board (IRB) approval to ensure it meets federal and state standards. Objectives include perspectives about forest management, priorities for projects and treatment and other best management practices.
   i. Identify a digital platform for capturing participant responses from community surveys that will be subsequently linked to an online mapping interface.

<u>Deliverables:</u>
- Create the framework community survey questions based on community outreach efforts, IERCD staff and project partner feedback in Year 1. Survey can be deployed in Year 2.

- Create digital tools to collect community survey participant responses and display results in online mapping tools and informational dashboards, 1 Story Maps, and 2 ArcGIS Field Maps
- Develop student internship opportunities including training, mentoring and oversight to assist with tasks.

Task 1 C. Identify and Develop a Database of Decision Support Tools:

Activities will include identifying and documenting existing decision support tools, opportunities to apply decision support tools, peer-reviewed literature and technical reports related to decision support tool methods and creating a pilot case study of how decision support tools can be utilized to identify existing conditions for forest treatment, management, and related project activities.
   a. Explore peer reviewed literature and technical reports that highlight decision support tools applications to assess existing conditions and project prioritization.
   b. Explore existing decision support tools to identify opportunities and limitations of these tools to compare with field observations (i.e., vegetation, cultural resources, hydrology) applied across chaparral, alpine forest and developed landscapes.

<u>Deliverables:</u>
- Develop a literature database that highlights uses and methods for applying decision support tools to meet project objectives.
- Develop an inventory of decision support tools that can be utilized to assist with determining landscape characteristics and project prioritization.

- Collaborate with project partners, forestry consultant team, and USFS staff to identify a small-scale pilot case study (i.e., Moonridge, Big Bear) to apply identified decision support tools to determine the extent to which tools can be applied to meet project objectives as well as if addition metrics are needed to be developed or if a new or modified decision support tool is warranted in Year 2/Phase 2.
- Recruit and train students to identify and document strategies for utilizing decision support tools and field observed conditions across environmental (i.e., forest, undeveloped) and cultural landscapes (i.e., developed, current and historical).

Task 2. Community Outreach & Education

A. Web Interface
   a. Design website that will highlight project partners and outreach objectives. Website will be updated with interactive maps, ArcGIS StoryMaps and in the future will host the survey tool and results (i.e., informational graphics based "dashboards") that will take place as the project evolves (year 2+).
      i. Maintain and update website.

   Deliverables:
- Produce a live website, interactive presence that enables community awareness of and interaction with partner roles and current and future objectives, including the deployment of a community survey and methods for determining current forest conditions.
- Train HRP partners to update and maintain website.

B. Outreach Community Partner Identification
   a. Utilizing information from Task 1Ac, create a list of potential organizations to assist with community outreach efforts as they evolve.
      i. Work with IERCD and SBVMWD staff to develop criteria for hiring organizations to assist with outreach efforts in year 2+ including the distribution of the community survey and identifying and documenting current forest conditions.

   Deliverables:
- Submit recommendations for the process of hiring community organizations to assist with communicating project objectives, distributing the survey and assisting with documenting current forest conditions.

C. Directed Outreach
   a. Work with the project marketing team and HRP Partnership Coordinator to ensure consistent branding and messaging that highlight project goals across various stakeholder meetings, events and other avenues for outreach and engagement. Process will also ensure project information is shared with a variety of stakeholder types (i.e., local, regional state, federal agencies, non-profits, residents).
   b. Recruit and hire student assistants to assist with hardcopy printing and tabling at events to share information.

Deliverables:
- Develop a suite of outreach materials that highlight efforts and direct people to the website for more information.
- Establish and meet thresholds for effective community outreach in multiple settings to maximize the range of participants in the dataset and overall project priorities' development.
- Mentor and train students to work and communicate effectively in public settings and to provide consistent information to stakeholders.

Task 3. Project Management & Reporting

A. Coordinate Communication & Accountability
a. Develop methods to communicate project and partnership progress based on proposal tasks.
b. Utilize information from Task 1 to identify potential project taskforce committee members who would provide feedback across project activities.

Deliverables:
- Host bi-weekly project team meetings (i.e., CSUSB, CSUN, HRP Partnership Coordinator) to ensure task objectives are being met and to solicit feedback on project activities.
- Develop and share meeting minutes across project partners and stakeholders.
- Identify taskforce members that may include staff from local, regional, and state agencies and non-profit organizations working in the San Bernardino National Forest. Members will assist with ensuring strategies and methods utilized across project activities.

B. Reporting
a. Develop ArcGIS StoryMaps and fact sheets that summarize and highlight project partner objectives and completed and ongoing activities.
    i. Highlight adaptive management strategies and lessons learned that can be used to inform community outreach and forest conditions efforts as the project evolves.
b. Utilize student interns to assist with collecting information for reports.

Deliverables:
- Develop and publish ArcGIS StoryMaps and fact sheets that highlight Task 1, 2 and 3 project activities, progress, and recommendations for adaptive project management strategies. Recommendations will also include how to evolve the project to a larger scale, deploying the survey, training opportunities and community engagement for additional project years 2+.

FLOWS: **Field-based Learning, Outreach, & Workforce Scholarship**

(Field Research & Service Learning School)

Objectives: FLOWS will provide workforce/professional development operations across research and service learning opportunities for CSU students and faculty through engaged partnerships with local, regional and state water resource practitioners and Tribal leadership. The focus for the experiences will be community and ecological water issues and solutions across the coast, mountain, valley and desert regions of California.

Learning objectives will enable students to build workforce development and community engagement based skill sets that apply curriculum knowledge to real-world applications. Activities will enable participants to become more well rounded, interdisciplinary researchers, practitioners, and water stewards.

Collective efforts will directly *address multiple components of the CSU and CSUSB Strategic Plans* including student and faculty success; community stewardship and partnership, as well as workforce development.

Phase 1: Pre-Field School Experiences

Learning communities will be established whereby students and faculty will partner with local resource agencies and alumni to identify water centric community strengths, needs and opportunities. Each campus cohort will educate the cohorts at other campuses about the water issues they face through the collection, analysis and presentation of data including videos, agency technical reports, community/Tribal perspectives and geospatial applications. Campus cohorts will meet bi-weekly to share their progress and to build a sense of community. Campus cohorts will also develop community social, economic and environmental *water landscape profiles a*nd Geographic Information System (GIS) *spatial analysis tools* that can be referenced before, during and after field site visits.

Each campus will determine course curriculum links for student credit.

Phase 2: On-Site Field Experiences

- CalPoly San Luis Opisbo Lead: Inland to Coastal Water Resources
  - Water Infrastructure, Drought & Sea Level Rise
  - Agriculture
    - Viticulture Partnerships
  - Morro Bay Marine Preserve

- CSUSB Institute for Watershed Resiliency Lead: Snow to Sand: Water Resources across the Santa Ana River Basin

- CSUN Dep[artment of Geography and Center for Geospatial Science and Technology Lead: Geospatial Application to Water Resource Conservation & Community Equity
  - Geospatial Analysis & Real-World Applications
  - Center for Geospatial Technology & Learning

Example Field Schedule:

Day 1	Day 2	Day 3	Day 4
Travel to sites. Service learning opportunity.	Research based field experience with practitioners.	Continue field research. Meet with Tribal leadership to learn about water perspectives.	Culminating experience ½ day workshop. Depart.

Phase 3: Post Field Experience Outreach & Establishing Feedback Loops

Continue learning community bi-weekly meetings to develop a report of field activities. Participating students will collaborate to develop ArcGIS Storymaps, research posters and other educational materials that can be presented to the campus communities, local agencies and Tribal leadership.

Efforts will assist in promoting the value of the program, create more meaningful cross campus and community partnerships as well as establish faculty-student-community research, service and learning opportunities. Additionally, this will *position FLOWS for program sponsorships to sustain and grow program activities.*

cover letter

Please see attached form. This form does not allow us to include all activities completed.

The Institute for Watershed Resiliency was formally established in the Spring of 2023 under the leadership of Dr. Jennifer Alford and with support from President Morales, Provost Mohamed, the Faculty Senate and numerous on and off campus partnerships including CSUSB Alumni. During this brief time, funding resources included support for multiple student internships ($15,700), supported ongoing multi-year water quality research in the San Bernardino National Forest, and a school garden program at Our Lady of the Assumption school (48th st San Bernardino). Fundraising efforts resulted in a subcontract with the Inland Empire Resources Conservation District's CA Department of Conservation Regional Forest and Fire Capacity Program ($160,000). Additionally, the IWR collaborated with the Chino Basin Water District to support an additional $30,000 in regional student internships. Other activities include developing a website, logo, and proposal for funding to support the IWR's two primary program areas; student fellowships and student and faculty incentive programs and the CSU's first field school program in partnership with CSUN and CalPoly SLO.

Grant submission activities totaling $3,199,000 with an additional $100,000 in gift donation proposal request for the 2023-2024 academic year. Although grant proposals were not funded, the IWR received gift donations totaling $105,000 to support the fellowship program for 2023-2024. Additionally, a year 2 proposal to expand the IERCD RFFC program has been submitted for approval (~$229,000)The IWR Is also partnering with community colleges and the CSUSB Cyber Security program to develop a water cyber security apprenticeship program which has been identified at the federal, state and local levels as a priority need for workforce development.

The IWR Director, Dr. Jennifer Alford continues to evolve a funding and partnership campaign to increase student fellowship learning, research and workforce development activities across the Inland Empire region. Planning for the 2024-2025 academic year including exploring partnerships in the San Bernardino, Coachella and Mojave regions.

Also included in this report is Dr. Alford's role as the Associate Director of Research for CSU WATER (formally WRPI), a CO supported CSU System Affinity group. Efforts for 2022-2023 include serving as the PI for the Department of Water Resources Disadvantaged Communities Involvement Program, which focuses on supporting water resources needs in disadvantaged and tribal communities across Los Angeles and Ventura counties. This multi-year project has resulted in ~$3,400,000 in funding resources for CSU and community activities.