SWERI Southwest Ecological Restoration Institutes
Colorado State University | New Mexico Highlands University | Northern Arizona University

ReSHAPE
Reshaping Wildfire & Fuels Reduction Information

ReSHAPE: Reshaping Wildfire and Fuels Reduction Information
Action Plan

January 2024

New Mexico Forest and Watershed Restoration Institute

NAU Northern Arizona University
Ecological Restoration Institute

Colorado Forest Restoration Institute
Colorado State University

Document Development

This technical document presents the SWERI Reshaping Wildfire and Fuels Reduction Information Project (ReSHAPE). This program is the response to a Congressional request in the Bipartisan Infrastructure Law (BIL) (Title VII, Sec. 8003) to compile and display fuel treatment and wildfire data and explore the effects of fuels treatments on wildfire. SWERI is committed to developing a program that has a clear audience, meets the needs of that audience, and contributes pertinent information to advance strategic management and application of fuel treatment funding. This report is informed by the knowledge of key partners and advisors in the USDA Forest Service and Department of the Interior, as well as input from key stakeholders. Staff from all three institutes of SWERI have been essential in forming the direction and compiling information that is included in the report, as well as document production and outreach activities.

Living Document Clause

Please note that this document is subject to change. SWERI is developing ReSHAPE to be responsive to stakeholder needs, advances in technology, and a growing understanding of how wildfire interacts with fuel treatments. Therefore, an annual review of the program's progress and goals will be conducted, and changes will be made to this document as needed given developments in technology, data, and the evolution of challenges in land management. All required parties will be notified when a new version is released.

Southwest Ecological Restoration Institutes (SWERI)

The Southwest Ecological Restoration Institutes include three university-based restoration institutes: the Ecological Restoration Institute in Arizona, the Colorado Forest Restoration Institute, and the New Mexico Forest and Watershed Restoration Institute. SWERI were authorized by the Southwest Forest Health and Wildfire Prevention Act of 2004 (PL108-317). As a Congressionally authorized program, the SWERI delivers actionable knowledge across a wide spectrum of affected entities to inform cross-boundary forest restoration and wildfire mitigation spanning management, ecology, policy, and research. For more info, visit www.sweri.org.

Ecological Restoration Institute (ERI), Northern Arizona University

ERI is nationally recognized for mobilizing the unique assets of a university to help solve the problem of unnaturally severe wildfire and degraded forest health throughout the American West. ERI serves diverse audiences with objective science and implementation strategies that support ecological restoration and climate adaptation on western forest landscapes.

Colorado Forest Restoration Institute (CFRI), Colorado State University

CFRI is a science-based outreach and engagement organization that serves as a bridge between researchers, managers, and stakeholders to restore and enhance the resilience of forest ecosystems to wildfires in Colorado, the Southern Rocky Mountains, and the Intermountain West. CFRI leads collaborations between researchers, managers, and stakeholders to generate and apply locally relevant, actionable knowledge to inform forest management strategies. CFRI's work informs forest condition assessments, management goals and objectives, monitoring plans, and adaptive management processes.

New Mexico Forest and Watershed Restoration Institute (NMFWRI), New Mexico Highlands University

NMFWRI collaborates with citizen stakeholders, academic institutions, NGOs, and professional natural resources managers to establish prescriptions and monitoring protocols for forest and watershed restoration. They promote ecological restoration and forest management efforts in ways that keep New Mexican homes and property safe from wildfire, lead to a more efficient recharge of New Mexican watersheds and provide local communities with employment and educational opportunities.

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Executive Summary

This Action Plan describes the methods, production schedule, roles, responsibilities, and contingencies to develop, deploy, maintain, and adaptively manage a national geospatial database of fuel treatments carried out under Section 40803(8) of the 2021 Infrastructure Investment and Jobs Act (IIJA).

This plan is divided into three parts: **Part I** lays out the SWERI's overarching framework for achieving effective coordination and coherence among the ReSHAPE Project's tasks, stakeholders, and roles.

Part II focuses on development of the Treatment and Wildfire Interagency Geodatabase (TWIG) platform and provides detailed work plans for each task individually, including scope, timeline, user stories, and key tasks.

Part III presents the SWERI's approach to creating, building, and maintaining engagement with its stakeholders through a community of practice.

Introduction

This Action Plan provides a roadmap for achieving the goals of the ReSHAPE Project within the parameters defined in the previously released Scoping Document. It outlines the steps and tasks required for the development of the Treatment and Wildfire and Interagency Geodatabase (TWIG) platform, related stakeholder engagement, and long-term operation and maintenance.

I. ReSHAPE Strategic Development Framework

This section lays out the SWERI's overarching framework for achieving effective coordination and coherence among the ReSHAPE Project's tasks, stakeholders, and roles. The methods detailed below guide coordination between the SWERI management team, the Technical Lead, and the development team to ensure the parties work together effectively using compatible approaches and methodologies.

Mapping to Scoping Document

The Action Plan section of the Scoping Document outlined key actions to be performed during the ReSHAPE Project. In this Action Plan, these actions have been grouped thematically to (1) specify which activities will be performed by the contractor or by SWERI staff and (2) organize platform development activities according to an Agile approach. The actions from the scope of work and their corresponding place in this document are summarized in the table below.

Table 1. Mapping of Action Plan to Scoping Document

Scope of Work – Key Action	Action Plan
Stakeholder Outreach	III. Building a Community of Practice, Task 5A
Database and Platform (TWIG and TWIG viewer) Development	II. TWIG Development Plan
Stage 1: Initial Viewer	Task 1A
Stage 2: Viewer with Case Studies	Tasks 2A, 2B, 2C
Stage 3: Viewer integrating effects	
Stage 4: Viewer with Counterfactual Research	

Scope of Work - Key Action	Action Plan
Compiling, Displaying, and Integrating Data	II. TWIG Development Plan, Tasks 1A, 2A, 3A
Providing Metadata Guidance	
Identifying pathways for facilitation and Use	III. Building a Community of Practice, Tasks 5A, 5B
Conducting a Pilot Assessment	II. TWIG Development Plan, Task 1B
Application of Geodatabase to Studying Effects	II. TWIG Development Plan, Task 2A
Communication and Outreach	III. Building a Community of Practice, Task 5A
Establishing a Community of Practice	III. Building a Community of Practice, Tasks 5A, 5B, 5C

Agile Project Management

This Action Plan will be implemented using an Agile methodology and the Scrum framework, which focuses on delivering small, functional increments of a project in short timeframes known as sprints. This approach allows for early and frequent feedback, ensuring that the project aligns closely with stakeholder expectations.

Key Agile Terminology

In Agile project management, the following principles and terminology are used.

> A **release** is the delivery of a functional increment of the product. Releases are planned at a project's outset and updated as needed throughout development.

> A **user story** is a short, simple description of a feature from the perspective of a user who wants a new capability, usually structured in the form "As a <user type>, I want <functionality> so that <reason>." User stories serve as the building blocks for planning and development. Large user stories are referred to as epics.

> **Epics** are large user stories that cannot be delivered within a single iteration and must be split into smaller user stories.

> A **sprint** is a development cycle, usually two weeks long, used to organize development efforts. At the outset of each sprint, specific user stories are selected to be addressed during that period.

> An **issue** is a specific task, bug, or work item based on user stories, feedback, or other project needs. The term is used specifically for task tracking in version control systems such as GitHub and Jira.

> A **backlog** is a prioritized list of user stories and issues that outline features and work items. Issues and user stories are collected in the backlog and prioritized for the development team each sprint based on the product owner's feedback.

Key Roles and Responsibilities

Project Coordination

The SWERI team will provide project coordination, including the following activities:

- Overseeing risk management efforts related to the release schedule
- Allocating resources to support release activities
- Continuously monitoring resource allocation and availability
- Communicating resource requirements and constraints to relevant stakeholders
- Developing contingency plans for resource adjustments
- Reviewing and approving release plans and milestones

Product Owner

The Product Owner is responsible for defining and prioritizing the product backlog, ensuring that the development team is working on the most valuable features, and representing the voice of the customer. The ReSHAPE Program Director will serve as the Product Owner. This role includes the following responsibilities:

- Defining and communicating the product's overall vision and goals
- Prioritizing the features and user stories in the product backlog based on customer feedback and user needs
- Defining detailed requirements and clear acceptance criteria
- Monitoring project progress and alignment with release goals
- Advocating for the needs and views of the end user in demonstrations of work completed and in progress
- Engaging with stakeholders to ensure that release objectives are met

In Agile development, it is recommended to select a single representative to act as the Product Owner. If multiple members of SWERI will share this role, it will be essential to maintain the principles of clarity, consistency, and efficiency in the decision-making process to ensure successful product development. The contractor may also assist with some of these responsibilities by performing activities such as defining detailed requirements and clear acceptance criteria for Product Owner approval.

Project Manager/Scrum Master

A hybrid Project Manager/Scrum Master is recommended to oversee the development team's tasking and address the following issues and needs:

- Identifying project dependencies and coordinating between development team members
- Assigning roles and responsibilities to address specific tasks
- Communicating and monitoring progress
- Identifying and eliminating "scope creep"
- Contingency planning and risk management
- Addressing impediments such as technical challenges and resource constraints
- Coordinating cross-functional teams involved in release activities

Development Team

Following a competitive application process, SWERI contracted with Innovate, Inc. to provide consultant services in support of the ReSHAPE Project. Directed by SWERI, the development team will focus on the research, design, and development of the TWIG platform, but may also include other forms of general support to assist with the stakeholder engagement activities defined above. Further details of these responsibilities are provided in Section II: TWIG Development Plan.

Core Practices

Below are the core practices the SWERI will use throughout the ReSHAPE Project development phases.

Communication

Internal coordination meetings between SWERI and the contractor will be held biweekly via Zoom or other video conferencing applications. Other ad hoc meetings with external stakeholders will be scheduled on an as-needed basis by the SWERI team. The Development Team is expected to hold regular internal meetings to address tasks, impediments, and progress.

File Sharing

The development team is expected to document all internal communications and store project files, including all source files and in-process products, in a suitable internal file management system (Box, SharePoint, etc.).

All interim and final deliverables should be stored in a designated project folder on SWERI's file management system. SWERI will provide the development team with the necessary storage and credentials at the start of the relevant contract.

Task Management

The development team is expected to manage project tasks using an Agile task management tool such as GitHub project boards. Progress will be reported using the same project management tools to provide an overview of user stories completed, development issues completed, and release planning.

Risk Management

Risk management is the systematic process of identifying, assessing, and mitigating potential risks that could impact the success of the ReSHAPE Project. It involves proactive planning and execution of strategies to minimize the negative effects of uncertainties and unforeseen events while maximizing opportunities for success.

Anticipated Risks & Mitigation Strategies

Below are risk factors identified as most likely to impact the progress of the ReSHAPE Project and suggested strategies for mitigating their impact. By detailing these approaches, SWERI aims to establish a robust framework for risk management, ensuring that any potential challenges are addressed in a timely and orderly manner.

Technical Challenges

Complexities related to the development of the TWIG Platform might lead to technical roadblocks, potentially impacting project timelines. The development team will conduct thorough feasibility studies and prototyping before full-scale implementation. Regular code reviews and technical assessments will be overseen by the Technical Lead to ensure quality and to identify and resolve issues promptly.

Resource Constraints

Inadequate availability of skilled personnel, technological resources, or budget deviations could hinder project progress. The SWERI project coordinator and Scrum Master will consistently monitor resource allocations, ensuring adequate personnel and resources are available. Contingency plans will be formulated in case of budget or resource adjustments.

Scope Creep

Expanding project scope beyond initial parameters may disrupt timelines and increase costs. SWERI, in collaboration with its Federal Advisory Team, will rigorously review and approve any proposed scope changes. Scope change requests will follow a standardized evaluation process to assess their impact on the project.

General Risk Management Practices

Monitoring Emergent Risks

Regular risk assessment meetings will be conducted involving key stakeholders and team leads. During these meetings, project developments and external factors will be reviewed to identify potential new risks. Any emergent risks will be promptly evaluated, and appropriate mitigation strategies will be formulated with the involvement of relevant parties.

Additionally, a dedicated risk tracking mechanism will be established. This system will allow team members to report emerging risks, providing a channel for addressing unanticipated challenges.

Contingency Planning

For each identified risk, contingency plans will be established, as appropriate. These plans will outline alternative strategies and action steps to be taken if the risk materializes, including the parties responsible for executing these contingency plans, enabling swift response and minimizing disruptions to the project timeline.

Monitoring And Reporting

SWERI recognizes that the knowledge and products that will be generated at each phase of the ReSHAPE Project are of high interest and value to a wide collection of stakeholders. To ensure that these products are visible and accessible to these audiences, SWERI will monitor and report progress at regular intervals to maximize public engagement.

This requirement is met most directly by reports and communication materials that will be published through phases of the ReSHAPE Project development. The table below provides a summary of all such communication-related deliverables, their tentative review and publication schedules, and prospective audience(s).

Table 2. Summary of communication-related deliverables

Deliverable	Estimated Delivery Date	Prospective Audience
Scoping Report v1 Draft	7/7/2023	US Forest Service

Deliverable	Estimated Delivery Date	Prospective Audience
Communication Plan		US Forest Service, Department of the Interior, and other program partners
Scoping Report v2 Draft	9/30/2023	US Forest Service, Department of the Interior, and other program partners
Action Plan v1 Draft	10/11/2023	In-person stakeholder meeting in Boise, ID
Final Scoping Report	11/30/2023	US Forest Service, Department of the Interior, and other program partners
Final Action Plan	4/30/2023	US Forest Service, Department of the Interior, and other program partners
Presentation/Report for web interface	10/25/2023	US Forest Service, Department of the Interior, and other program partners
Outreach Strategy	3/31/2024	US Forest Service, Department of the Interior, and other program partners
Report for Database Architecture/Design	2/15/2024	US Forest Service, Department of the Interior, and other program partners
Operation and Management Plan for TWIG platform	5 years from receiving award	US Forest Service, Department of the Interior, and other program partners
5-year report	5 years from receiving award	US Forest Service, Department of the Interior, and other program partners

II. TWIG Platform Development Plan

The ReSHAPE Project will employ a phased release schedule for TWIG Platform development. Table 3 summarizes three major planned releases and support. The sections below detail the methods, production schedule, roles, responsibilities, and contingencies associated with each development phase and component task.

Table 3. TWIG Platform development plan and release schedule

Task	Planned Start Date	Planned Completion Date
Phase 1: Develop Alpha Version and User Testing (year 1)	**October 2023**	**April 2024**
Task 1A: Develop Alpha Version	October 2023	April 2024
Task 1B: Alpha Version User Testing	December 2023	March 2024
Phase 2: Develop Beta Version and Public Rollout (year 2)	**May 2024**	**September 2024**
Task 2A: Develop Beta Version	May 2024	September 2024
Task 2B: Public Rollout and Outreach (quarterly version releases planned)	October 2024	September 2026
Task 2C: Beta Version User Testing	April 2024	September 2024
Phase 3. Develop and execute on an Operations and Maintenance (O&M) Plan (years 3-4)	**October 2026**	**September 2027**
Task 3A: Finalize Production Version	October 2026	
Task 3B: Develop Operations and Maintenance Plan	October 2026	September 2027
Task 3C: Conduct long-term Operations and Maintenance	October 2026	September 2027

Task	Planned Start Date	Planned Completion Date
Broad Support for the ReSHAPE Project (years 1-4)	October 2023	September 2026
Task 4A: Broad Support for the ReSHAPE Project and Deliverables	October 2023	September 2026
Task 4B: Develop 5-year Report Framework	September 2024	September 2026

Skills and Responsibilities

The following skills and responsibilities will be needed to address project needs. Multiple responsibilities may be fulfilled by the same team member. Some skills and responsibilities will only be required for one or more phases of the project. Additional skills and responsibilities may be identified as the project progresses.

> **Technical Direction:** Overseeing the technical aspects of the development, ensuring architectural integrity, and providing technical guidance to the development team.

> **Backend Development:** Designing, implementing, and maintaining the server-side components of the TWIG Platform.

> **Database Administration:** Managing, optimizing, and securing TWIG data.

> **GIS Management and Analysis:** Collecting, organizing, processing, and analyzing geospatial data.

> **Testing and Quality Assurance:** Ensuring the quality and functionality of TWIG Platform.

> **Development Operations:** Automating deployment, ensuring continuous integration, and managing server and cloud resources.

> **Frontend Development:** Creating the user interface and client-side functionality of the TWIG Viewer.

> **UI/UX Design:** Creating user-friendly and visually appealing user interfaces (UI) through which users engage with simple and intuitive user experience (UX) workflows.

> **Accessibility Compliance and Testing:** Ensuring that the TWIG Viewer is accessible to users.

User Research: Designing activities to understand user needs and behaviors to guide product development.

Usability Testing: Evaluating product usability and user satisfaction through regular testing with real users.

Technical Support: Providing end-user support and handling user-reported issues and inquiries.

Phase 1. Develop Alpha Version And Conduct User Testing

Task 1A. Develop Alpha Version

Planned Release Date: March 31, 2024

Overview

The initial release will establish an architecture for the TWIG Platform, develop basic functionality, and obtain feedback on design through iterative development and presentations.

User Stories

Below are some of the user stories that will guide development of the Alpha version. Stories that relate to the same general body of work are grouped together as epics. As the team learns more about each epic during development, user stories will be added and removed to better match user needs to development requirements.

Epic: Planning and Documentation

As SWERI, we want the refresh interval for data consumption for all source data to be determined and documented to ensure that the database remains up-to-date and avoid disruptions in service.

As SWERI, we want a comprehensive metadata strategy to be developed, providing descriptive information about the data so data discoverability, understanding, and usability can be expedited for all stakeholders.

As SWERI, we want access, user permissions, and other administrative controls to be configured to allow maximally open access to the TWIG platform while adhering to applicable data sharing and security requirements.

Epic: Geodatabase Development

> As a Federal GIS Analyst, I want to understand the data, their sources, how they were processed, and how they intersect so I can utilize the data effectively.

> As an Ecologist, I want to view documentation of each attribute included in the database so I can understand the meaning of each attribute.

> As an Ecologist, I want to access summaries of the processing steps for any datasets which were aggregated or altered so I can understand the decisions made, test for errors, and replicate the results.

> As a GIS Researcher, I want to access clear metadata for each feature service, table, and dataset so I can ensure I am accessing the correct layer for my needs.

> As a Federal Land Manager, I want feature services, tables, and datasets to have a consistent visual language and consistent terminology so I can easily compare different layers.

> As an Ecologist, I want to browse, filter, search, and explore available datasets, tables, and feature services so I can understand which data sets are available and how to access them.

> As a Federal GIS Analyst, I want to view the origin of each dataset so I can locate the source data if needed.

> As a Federal GIS Analyst, I want to be able to download TWIG data onto my local machine so that I can work with them freely in offline applications.

Epic: Viewer Development

> As a Congressional Staffer, I want to export aRe summary of federal treatments and wildfires in my congressional district so I can report to staff members and constituents.

> As a Federal GIS Analyst, I want to access standard web map tools such as measure, select, basemap selector, layer list, compass, search, and legend so I can perform advanced GIS analysis with TWIG data using the TWIG viewer.

> As a Congressional Staffer, I want to view a web map containing wildfire and treatment data so I can visualize occurrences and activities.

> As a Congressional Staffer, I want to view a simple layer list and legend for the web map so I can understand the data visualized on the map.

> As a Federal GIS Analyst, I want to browse available datasets to add to the web map so I can visualize variables that are important to me alongside wildfire and treatment data.

> As a Congressional Staffer, I want to know how many federal treatments have occurred in a Congressional district within a set time period so I can understand where funding is going in my district.

> As a GIS Researcher, I want to compare federal and state fuel treatment projects across my state for at least the past 10 years so I can evaluate the effects of treatments over time.

> As a Congressional Staffer, I want to view where treatments have occurred for a specific program so I can report on the activities funded by that program.

> As a Federal Land Manager, I want to view wildfire and treatment data for a given federal geographic area such as region or forest so I can report on that geography.

> As a GIS Researcher, I want to visualize wildfire and treatment data on the map based on my preferred attributes so I can view the data that is important to me.

> As a GIS Researcher, I want to filter the wildfire and treatment data so I can view only the occurrences and activities that are important to me.

> As a Congressional Staffer, I want only the most important layers to be visible on the map so I can quickly and easily interpret the map.

Epic: Resource Hub and Landing Page Development

> As a Congressional Staffer, I want to easily navigate between different sections of the platform and the SWERI website so I can replicate navigation steps and return to previous pages.

> As a Federal Land Manager, I want to visit a descriptive and informative landing page so I can understand the context and content of the TWIG platform and navigate to the appropriate page.

> As a Federal GIS Analyst, I want to access external resources and datasets related to wildfire and fuel treatments so I can expand my research as needed.

> As an Ecologist studying treatment effects on wildfire behavior, I want to gain insights into the project's methodology and findings so that I can incorporate this information into my studies, contribute to the scientific understanding of wildfire treatment, and inform policy recommendations.

> As a Federal Land Manager, I want to learn about the ReSHAPE Project's approach to wildfire treatment so that I can align our agency's strategies with the latest effective methods and collaborate with other agencies to enhance our collective wildfire management efforts.

> As a Congressional Staffer, I want to understand the project's impact on wildfire prevention and response so that I can effectively communicate my district's involvement in proactive fire management strategies to constituents and advocate for necessary resources.

Key Activities and Deliverables

> Plan and develop elements required to support the TWIG platform, including the following:

- Data and application hosting: Enterprise server, portal, and geodatabase
- On-premise and/or Cloud computing resources
- Extract-Transform-Load (ETL) processes
- Database architecture and schema
- Data documentation
- Metadata

> Design and develop frontend applications providing an interface with TWIG data, including the following:

- TWIG viewer
- TWIG landing page and web site
- TWIG resource hub

Task 1B. Alpha Version User Testing

Planned Timeline: December 2023 to September 2024

Overview

Once the development of Alpha version begins, the contractor will conduct user testing with SWERI and a subset of stakeholders to ensure that TWIG Platform requirements and goals are appropriate, usability and accessibility are being addressed, and feedback is collected and analyzed.

Key Activities and Deliverables

- Develop testing strategies and select a focus group
- Conduct user interface and user experience testing
- Conduct focus groups

Phase 2. Develop Beta Version And Public Rollout

Task 2A. Develop Beta Version

Planned Release Date: October 2024

Following the release of Beta Version in October 2024, updates will be released at the end of every quarter for a total period of two years.

Table 4. Planned release schedule for TWIG Platform Beta Version

Projected Timeline	Release
October 2024	Beta Version
January 2025	Quarterly Update
April 2025	Quarterly Update
July 2025	Quarterly Update
October 2025	Quarterly Update
January 2026	Quarterly Update
April 2026	Quarterly Update
July 2026	Quarterly Update
October 2026	Quarterly Update

Overview

Based on information collected through user research and feedback on the Alpha version, the development team will continue to refine the TWIG Platform using the Agile methodology until the release of a Beta version.

User Stories

User stories that were not addressed in the Alpha version may be reprioritized and addressed during this development timeframe. Additional user stories and issues generated through the development and feedback process will be documented and used to plan sprints for the Beta version.

Key Activities and Deliverables

> As needed, implement improvements to the TWIG Platform, including the following:

- Data and application hosting: Enterprise server, portal, and geodatabase
- On-premises and/or cloud computing resources
- Extract-Transform-Load (ETL) processes
- Database architecture and schema
- Data documentation
- Metadata
- TWIG viewer
- TWIG landing page and web site
- TWIG resource hub

Task 2B. Public Rollout And Outreach

Planned Timeline: October 2024 to September 2026

Overview

Once Beta is released, SWERI will share and promote TWIG Platform, engage stakeholders and users, gather and address feedback, and provide training and technical support. These activities will help SWERI develop a reputation as a source of authoritative data and an anchor of a community of practice.

User Stories

While not required to guide these engagement efforts, the following user stories can help SWERI and any contractors to ensure end user needs are addressed by the platform or by engagement and outreach.

Epic: Communicating Updates to Users

> As a Federal GIS Analyst, I want to view the most up to date wildfire data and be informed of future updates so that I can ensure that I use the most accurate and authoritative data in my analyses.

> As an Ecologist, I want to be kept informed of developments in wildfire fuel treatment data and applications so that I can plan and execute meaningful analyses.

> As a Congressional Staffer, I want to be kept informed of ReSHAPE Project developments and fuel treatment impacts on wildfire so that I can provide oversight and ensure funding is used appropriately.

> As a Federal Land Manager, I want to stay informed about the latest research findings and practical insights so that I can make informed decisions in support of resilient landscapes.

> As a Federal GIS Analyst, I want to share my wildfire and treatment data so that I can ensure comprehensive coverage and accessibility of critical information.

Key Activities and Deliverables

- Public rollout of the national database and the final webinterface
- Quarterly feedback from public-facing outreach mechanisms
- Outreach/training development and implementation
- Conference or similar event attendance, including conducting presentations

Task 2C. User Testing

Planned Timeline: August 2024 to September 2026

Overview

Once Beta is released to the public, the contractor will continue to manage user testing to ensure that continued development meets any new platform requirements and goals, usability and accessibility are appropriately addressed, and feedback is collected and analyzed.

Key Activities and Deliverables

- Develop testing strategies and select focus group
- Conduct user interface and user experience testing
- Conduct focus groups

Phase 3. Develop And Execute An Operations And Maintenance Plan

Task 3A. Finalize The Production Version Of The Twig Platform

Planned Release Date: October 2026

Overview

Based on the final release version of the TWIG Platform, the database and application code base will be put into a lock down state, restricting any further edits. At this point, the platform will be placed in an Operations and Maintenance (O&M) stage. This stage involves the ongoing support, monitoring, and enhancement of the platform after it has been deployed. The goals of the O&M stage include stability, security, and continued alignment with user needs and business goals.

Key Activities

- Perform any final user testing, quality assurance, documentation, and training materials required
- Deploy the final version of the TWIG platform

Task 3B. Develop An Operations And Maintenance Plan

Planned Timeline: October 2026 to March 2027

Overview

Develop long-term operations and maintenance plan to accommodate updates, database maintenance, user interface improvements, technical support for users, and other requirements as needed.

Key Activities and Deliverables

- Develop a database management and maintenance strategy
- Establish a user support and technical assistance process
- Establish a version control and update procedure
- Determine a user interface enhancement approach
- Implement security and privacy measures

Task 3C. Conduct Long-Term Operations And Maintenance

Planned Timeline: October 2026 to September 2027

Overview

Execute the O&M plan for maintaining and updating the application and database in the long term which will include adapting with emerging technologies.

Key Activities and Deliverables

- Perform regular updates and patch management
- Perform database maintenance and data updates
- Adapt platform as appropriate based on emergent technologies
- Provide user support and help desk
- Monitor and optimize performance
- Prepare documentation for knowledge transfer
- Perform risk management and contingency planning
- Manage reporting and accountability

Broad Support For The Reshape Project

Task 4A. Broad Support For The Reshape Project Products And Deliverables

Planned Timeline: October 2023 to September 2027

Overview

Provide ongoing summary reports, project management oversight, biweekly team meetings (virtual), travel to attend meetings and working groups as needed.

Key Activities and Deliverables

- Create ongoing summary reports
- Provide project management oversight
- Manage biweekly sprint planning and retrospective team meetings

- Travel to attend meetings and working groups as needed

Task 4B. Develop The 5-Year Report Framework

Planned Release Date: September 2027

Overview

Develop the template/draft of the 5-year report describing the application and use of the database and treatment interactions with wildfires across jurisdictions, regions, and treatment types. This will provide the foundation for the final project report for the end of Year Five.

Key Activities and Deliverables

- Develop report structure and components
- Create a template/draft report
- Integrate report with project deliverables
- Review and incorporate feedback
- Finalize and submit

III. Building a Community of Practice

Task 5. Build A Community Of Practice

Planned Timeline: October 2023 to September 2027

Overview

SWERI will engage with a wide variety of stakeholders in the fields of wildfire prevention, fuel treatment, forestry, vegetation management, and land management to ensure that TWIG is successful and provides value to each of the engaged users and entities. The goals of these engagement activities include promoting mutual recognition of the work and supporting a community of practice to improve the application of fuel treatments on the landscape in local, regional, and national efforts.

Considering the wide range of efforts to aggregate wildfire and fuel treatment data and address issues within the field, SWERI intends to position TWIG as a platform to facilitate data sharing between researchers, analysts, program managers, federal agencies, and representatives to share knowledge and other resources in the advancement of management strategies. SWERI will establish a community of practice that helps support ongoing learning around the following:

- Understanding and accessing existing data
- Identifying data gaps and needs
- Facilitating and applying data
- Understanding the effects of fuel treatments
- Defining and measuring fuel treatment effectiveness

Activities outlined in this section will be primarily performed by SWERI members, but the contractor and stakeholders may provide support for many of these activities as part of their work that involves research on and engagement with the TWIG user base.

Task 5A. Perform Stakeholder Outreach And Engagement

SWERI will leverage existing relationships within the Four Corners Region to launch initial outreach efforts for the application. Building on relationships and partnerships that extend beyond the region will also be vital to TWIG's success, such as The Nature Conservancy's Fire Learning Network. Among its external outreach activities, SWERI plans to present at conferences, work within existing professional networks, host webinars, and organize peer learning workshops. SWERI will reach out to identified key audiences, namely: 1) Congressional representatives, 2) Federal partners, and 3) Researchers.

Key Activities and Deliverables

Key outreach activities to be performed include the following:

- Annual visit to Washington, D.C.
- In-person meetings with representatives
- Annual update to federal partners, managers of systems of record and decision support tools
- Engagement with research work groups
- Presentations at key conferences
- Working with researchers at the USFS R&D and home universities
- Present case studies on interactions between treatments, wildfire, and values
- Continuous communication with leadership and program managers at the national and state levels
- Continuous updating and feedback from public-facing outreach mechanisms

This task also includes the following deliverables:

- A portfolio of peer-learning workshops, summary reports, and presentations to key audiences regarding the factors related to the following:
  - The coordination and use of fuel treatment data and related spatial information to assess, plan, and monitor the effects of fuel treatments, and potential interventions to reduce inhibiting factors
  - The effectiveness of fuel treatments relative to wildland fire-related management objectives

Task 5B. Facilitate User Adoption

Overview

User adoption refers to the process by which users engage with TWIG to address their research and reporting needs. The following steps in the user lifecycle should be evaluated, optimized, and measured to maximize user adoption.

Engagement: Initial interest can be evaluated using web analytic statistics, including the source of the visitor's initial engagement, the number of views for specific pages, the number of pages viewed per visit, and the length of time of a user's visit.

User Registration: The number and type of users registered is also an important measure. In its Alpha version, TWIG will not require or offer user registration; however, this is an important consideration as the platform continues to develop and additional functionality is added.

Onboarding: After registration, the platform should provide a smooth onboarding process. This includes guiding users through the platform's features and functionalities, helping them set up their profiles, and demonstrating how to use the core features. For the Alpha version of the platform and non-registered users in later versions, this stage includes interactive tours, guided workflows, and contextual help in the form of tooltips, descriptive text, and popups.

Engagement: User adoption also involves tracking how actively users engage with the platform. Metrics like daily, weekly, or monthly active users (DAU, WAU, MAU) are often used to measure user engagement. High engagement rates indicate that users find value in the platform.

Feature Utilization: Successful user adoption means that users are not only using TWIG but also utilizing its various features and tools. Monitoring which features are most frequently used and which are underutilized can help in optimizing the platform and guiding future development.

User Retention: User retention describes how many users that continue using TWIG after their first use and following subsequent uses. It is usually measured using a retention rate, which is the percent of users at one stage in the user lifecycle that return and engage at a subsequent stage. Measuring user retention ensures that users are satisfied and continue to find value in the platform.

Key Activities and Deliverables

Identify metrics and KPIs to prioritize in measuring user adoption, engagement, and retention

Based on available audience and initial engagement, set benchmarks for each KPI

Evaluate the performance of each KPI, optimize platform features/functionality, and schedule communications to engage and encourage continued engagement

Task 5C. Implement Support And Feedback Mechanisms

Overview

Providing resources to assist users in the use of TWIG as well as offering feedback mechanisms to gather information will encourage continued use of the platform.

> **Training and Support:** The platform should include adequate training resources such as guides, tutorials, videos, and interactive assistance to troubleshoot issues.

> **User Feedback:** Feedback gathering involves actively seeking input from users to understand their preferences and pain points, guiding improvements to TWIG. This should be accomplished both through easily accessible links within the platform allowing users to submit their own feedback and through surveys, focus groups, and similar campaigns.

> **User Satisfaction:** Measuring satisfaction, which can be collected from within the platform as well as through external engagement, can assess whether users trust TWIG as an authoritative source of data, whether it provides differentiated functionality that frames it as a necessary resource, and whether the tools and data provided meet the needs they are intended to meet.

Key Activities and Deliverables

> Work with the development team to produce training guides, tutorials, videos, and interactive assistance tools.

> Ensure the platform contains mechanisms for users to submit feedback and solicit feedback external to the platform.

> Define metrics to measure user satisfaction and measure satisfaction through platform mechanisms and external engagement.

> Perform assessment of the platform and its use to evaluate against program goals.

User Stories

Epic: Developing a Community of Practice

> As a Federal GIS Analyst, I want to share my expertise in analyzing wildfire and fuel treatment data so that I can help identify existing data and potential gaps for improved management strategies.

> As an Ecologist, I want to collaborate with fellow researchers and practitioners so that I can advance the field's understanding of wildfire management strategies.

> As an Ecologist, I want to share my on-ground experiences in implementing fuel treatments so that I can improve management practices.

> As SWERI, we want to facilitate discussions and knowledge exchange sessions so that we can help wildfire treatment experts address challenges and apply effective strategies.

> As SWERI, we want to represent the regional interests and priorities in fuel treatment and wildfire management so that we can foster a stronger connection between local and national efforts.

Schedule of Engagement Activities

Table 5. Projected schedule of stakeholder engagement activities

Projected Timeline	Outreach Event (OSEC Lead)	Participants	Materials/ Outcomes
December 2023			
December 2023	Association for Fire Ecology – Fire Congress	Researchers	Briefing paper, scope of work, Action Plan, paper on decision support tools
December 2023	Meet with USDA Forest Service Associate Chief		
October 2023	Cohesive Strategy Workshop		
March 10, 2024	Quarterly Report	Advisors	Regular update to funders and advisors
March 2024	Release of Alpha Version	Potential users, advisors, federal partners, state partners	Alpha version, surveys
March 2024	Release white paper on existing decision support tools		
March 2024	Release white paper on data comparability and gaps		

Projected Timeline	Outreach Event (OSEC Lead)	Participants	Materials/ Outcomes
March 2024	Visit with representatives in DC	Elected officials, appropriations, federal fund managers	Alpha version
March 2024	Present Action Plan		
2024	User workshops	Federal partners, potential users, state partners	
April 2024	Research workshop	Research interested in effects	
May 2024	Collaborative partners		Case study concepts
June 10, 2024	Quarterly Report	Advisors	Regular update to funders and advisors
October 2024	Re-convene participants of Boise meeting to update on progress and present public release		
October 10, 2024	Quarterly Report	Advisors	Regular update to funders and advisors
January 10, 2024	Quarterly Report	Advisors	Regular update to funders and advisors
Spring 2024	User workshops and program assessment	Federal partners, additional users, collaborative groups	
Fall 2024	Assessment of program and uses		
Winter 2024	Present case studies on effects of fuels treatment and wildfire		
October 2025	Re-convene participants of Boise meeting to update on progress and present pre-Beta prototype		

Appendix A. ReSHAPE Project Strategic Task Framework

Table 6. ReSHAPE Project Strategic Task Framework

IIJA Directive	Task – Scope of Work	Task – Action Plan
(E) - Carry out related activities	Task 2.e. Prototype(s) for database and web map	Tasks 1A, 1B
(A), (B) - Compile and display fuel treatment and wildfire occurrence data	Task 3.a. Public rollout of database and web map	Tasks 2A, 2B, 2C
(C)(i) - Facilitate use of data for assessing and planning cross-boundary treatments	Task 3.b. Engagement related to monitoring fuel treatments	Task 5A
(C)(ii) - Facilitate use of data for monitoring treatment effects	Task 3.c. Engagement related to measuring fuel treatment effects	Task 5A
(E) - Carry out related activities	Task 3d. Continuous stakeholder communication; broad support for SWERI	Tasks 4A, 5A, 5B, 5C
(D) - Publish a report every 5 years	Task 3.e. Develop the 5-year report framework	Task 4B
(E) - Carry out related activities	Phase 4 Deliverable 1. Maintaining and updating TWIG data	Tasks 3A, 3C
	Phase 4 Deliverable 2. Operation and maintenance schedule and plan	Task 3B
(D) - Publish a report every 5 years	Phase 4 Deliverable 3. Final 5-year report	Task 4B