

Madera MLRP Project Portfolio Recommendation for Public Comment

June 11, 2025

Language Interpretation Services:

Spanish interpretation of this document in Spanish is available upon request. / *La interpretación en español de este documento está disponible a solicitud. Correo electrónico:* mlrp@maderacounty.com.

Other language assistance is available by calling (559) 675-7700.

Introduction and Purpose

The Madera County Multibenefit Land Repurposing Program (Madera MLRP) is pleased to present our recommended portfolio of projects for public comment. This document outlines six (6) selected projects and three (3) runner-up projects that were chosen through a competitive evaluation process to receive MLRP funding consideration.

About MLRP

MLRP is a California Department of Conservation (DOC) grant-funded program that supports willing landowners in transitioning irrigated agricultural lands to alternative uses that require less water while providing multiple benefits to communities, the environment, and local economies. The Madera MLRP—one of eight block grantees that are part of the DOC statewide MLRP—aims to help Madera County achieve groundwater sustainability goals while creating meaningful co-benefits for disadvantaged communities and supporting regional resilience.

Project Scoring and Selection Process

The Madera MLRP received 72 pre-applications and then 28 complete project application submissions during the September 2024-March 2025 application period. Each application was evaluated using a comprehensive scoring rubric that assessed:

Key Goals and Outcomes:

- Support for disadvantaged communities
- Net water savings achievement
- Support for community and domestic wells
- Waterway area buffers
- Provision of multiple co-benefits.

Proposal Quality and Feasibility:

- Overall implementation plan
- Budget reasonableness and cost-effectiveness
- Project schedule and timeline
- Monitoring plan quality.

Projects were evaluated by a technical scoring team comprising experts in water resources, economics, engineering, and land use planning. The evaluation process prioritized projects that most aligned with California Department of Conservation programmatic goals and Madera County regional objectives for the MLRP.

Purpose of Public Comment

This public comment period (**June 11 - June 27, 2025**) provides an opportunity for community members, stakeholders, and the public to review and provide input on the recommended project portfolio. This feedback helps ensure that public input on each selected project—and the portfolio as a whole—is discussed and considered before the portfolio is reviewed by DOC.

How to Submit Comments:

Email: mlrp@maderacounty.com

Public Comment Deadline:

All comments must be received via email at mlrp@maderacounty.com by 11:59 p.m. on Friday, June 27, 2025.

Project Portfolio Recommendation

Six projects were selected to be considered for primary funding awards for the Madera MLRP. In addition, three projects are included in the project portfolio recommendation as runner-ups. For the purposes of ensuring unbiased public comment, each primary project has been assigned a letter and descriptive name, which do not represent a hierarchy or order of priority as these projects will advance together to the Department of Conservation for approval. The three runner-up projects are ranked in order of priority to clarify which would be considered first if additional funding becomes available or if any primary projects encounter implementation challenges during the approval process.

Primary Funding Awards (6 Projects—NOT in Ranking Order)

- Project A: Stormwater – Multibenefit stormwater management with public access and recreational opportunities.
- Project B: Tribal/Cultural Space – Unique cultural space benefiting tribal and indigenous community needs.
- Project C: Recharge/Flood Management – Combined recharge and flood management systems.
- Project D: Agave Crop – Transitioning to drought-resistant agave with habitat co-benefits.
- Project E: Buffer Zone – Creating community buffers between agricultural operations and residential areas while providing groundwater recharge.
- Project F: Large Recharge – Large-scale groundwater recharge combined with native habitat restoration.

Runner Up Projects (3 Projects—IN Ranking Order)

1. Runner Up Project 1 – Agave Crop B
2. Runner Up Project 2 – Recharge/Flood Management B
3. Runner Up Project 3 – Recharge/Flood Management C

Project Summaries

The following section presents a high-level summary of each project. Refer to the Appendix for more detailed overviews of each project.

PROJECT A: STORMWATER

Project Type: Multi-benefit stormwater management with recreational opportunities

Location: Disadvantaged community area prone to flooding with declining groundwater levels

Conversion Area: 17.3 acres of almond orchard

Water Savings: 36.7 acre-feet annually through elimination of almond irrigation

Total Project Budget: \$1,281,797 | **MLRP Funding Request:** \$881,797

Key Co-Benefits:

- **Community Recreation:** Creates first public recreational space in underserved area with walking trails, open space access, and community event hosting.
- **Flood Risk Mitigation:** Provides 10 acre-feet of detention capacity plus 47-72 acre-feet of stormwater infiltration annually.
- **Water Quality Enhancement:** Reduces nitrate loading by 1,514 lbs/year and removes 50-80% of sediment from upstream stormwater runoff.
- **Air Quality Improvement:** Eliminates agricultural dust and pesticide applications while establishing air-filtering vegetation.
- **Employment Opportunities:** Generates construction jobs and ongoing maintenance employment.

Unique Features: Creates publicly accessible green infrastructure while managing stormwater runoff and reducing flood risks to nearby communities. Includes engineering design for 4.5-acre stormwater basin with forebay, public access infrastructure (walking path, parking, interpretive signage), and establishment of native habitat across both public and private areas.

PROJECT B: TRIBAL/CULTURAL SPACE

Project Type: Tribal/cultural benefits and wellness space

Location: Central Madera County on previously irrigated almond orchard

Conversion Area: 4.2 acres of almond orchard

Water Savings: 3.6 acre-feet annually through transition to minimal irrigation cultural space

Total Project Budget: \$1,229,974 | **MLRP Funding Request:** \$1,000,000

Key Co-Benefits:

- **Tribal and Cultural Benefits:** Provides dedicated space for Indigenous traditional practices including Temazcal sweat lodges and cultural preservation with equitable access for tribal communities.
- **Community Education and Wellness:** Creates accessible programming for disadvantaged communities including wellness activities, cultural education, and environmental stewardship training.
- **Employment Opportunities:** Generates construction jobs and ongoing employment through retreat operations, maintenance, and cultural programming
- **Habitat Creation:** Establishes native pollinator habitat and wildlife corridors using drought-tolerant species with cultural significance, preserving and celebrating indigenous botanical knowledge.
- **Renewable Energy:** Off-grid solar energy systems for site operations.

Unique Features: Includes a 2,600 square foot area specifically designated for tribal use, featuring rotational strip cropping that supports traditional land stewardship practices and culturally significant crops. Tribal groups and Indigenous-led organizations will receive equitable net revenue shares from ticketed events, after transparent expense deductions, ensuring economic benefits flow directly to tribal communities.

PROJECT C: RECHARGE/FLOOD MANAGEMENT

Project Type: Combined groundwater recharge and flood management infrastructure

Location: Near priority waterway with existing infrastructure access to flood flows

Conversion Area: 12 acres (10 acres recharge basin, 2 acres solar)

Water Savings: 30 acre-feet annually plus estimated 733 acre-feet average annual recharge

Total Project Budget: \$2,778,845.69 | **MLRP Funding Request:** \$1,000,000

Key Co-Benefits:

- **Flood Risk Mitigation:** Strategic flood water management during peak flow conditions, reducing pressure on existing flood bypass infrastructure.
- **Renewable Energy:** 215 kWh solar photovoltaic system powering operations.
- **Maintains Working Landscape:** Preserves 154 acres of productive pistachio farming while adding water management infrastructure.
- **Air Quality Improvement:** Reduces dust from eliminated farming operations and decreases emissions through solar energy use.
- **Employment Opportunities:** Creates construction jobs and ongoing maintenance positions.

Unique Features: Strategically located near Chowchilla Bypass with existing turnout structure to capture flood flows for groundwater recharge. Includes variable frequency drive pump system with fish screens and integration of solar power to pump and operational systems.

PROJECT D: AGAVE CROP

Project Type: Crop transition to drought-resistant agave production

Conversion Area: 37.27 acres (34.27 acres agave, 3 acres reservoir)

Water Savings: 83 acre-feet annually (83% reduction from pistachios to agave)

Total Project Budget: \$1,095,510 | **MLRP Funding Request:** \$1,000,000

Key Co-Benefits:

- **Economic Diversification:** Demonstrates innovative crop alternatives providing income through 10-year agave harvest and interim hijuelo (clone) sales.
- **Air Quality Improvement:** Eliminates heavy machinery operations, reducing particulate matter, carbon monoxide, and nitrogen dioxide emissions.
- **Soil Quality Enhancement:** Implements organic farming methods and utilizes agave's deep root structure to improve soil stability.
- **Habitat Creation:** Establishes pollinator habitat through California buckwheat plantings around reservoir.
- **Flood Risk Mitigation:** 15 acre-foot water reservoir provides stormwater retention and infiltration.

Unique Features: Demonstrates transition from more water-intensive pistachios to drought-resistant agave while maintaining agricultural productivity. Includes construction of groundwater recharge reservoir with native habitat enhancement.

PROJECT E: BUFFER ZONE

Project Type: Agricultural buffer zone between farming operations and residential areas

Location: Immediately adjacent to residential community areas

Conversion Area: 118 acres of almond orchard

Water Savings: 324 acre-feet annually through elimination of almond irrigation

Total Project Budget: \$1,364,233.84 | **MLRP Funding Request:** \$1,000,000

Key Co-Benefits:

- **Community Buffer:** Creates nearly 1,000-foot-wide buffer between agricultural operations and 24 residential parcels, reliant on private domestic wells, eliminating pesticide drift and agricultural dust impacts.
- **Air Quality Improvement:** Removes dust-producing farming operations including tree shaking, sweeping, and mowing activities adjacent to residential areas.
- **Water Quality Enhancement:** Eliminates application of pesticides and herbicides on 118 acres, reducing potential contamination of local groundwater supplies.
- **Flood Risk Mitigation:** Three engineered recharge basins provide stormwater detention and infiltration to protect more than 200 downstream residential properties.
- **Habitat Creation:** Establishes natural habitat corridor for pollinators and wildlife.

Unique Features: Addresses community concerns about agricultural impacts while creating beneficial water management infrastructure. Includes removal of approximately 16,000 almond trees and construction of three small recharge basins with engineered dikes to enhance groundwater recharge in immediate vicinity of challenged domestic wells.

PROJECT F: LARGE RECHARGE

Project Type: Extensive groundwater recharge combined with native habitat restoration

Location: Single parcel within Madera Irrigation District boundaries

Conversion Area: 50 acres (retirement of planned citrus development)

Water Savings: 120 acre-feet annually plus 291 acre-feet average annual recharge

Total Project Budget: \$966,554 | **MLRP Funding Request:** \$966,554

Key Co-Benefits:

- **Habitat Creation:** Establishes native plant species habitat supporting beneficial insects, pollinators, birds, and biodiversity designed for seasonal flooding compatibility.
- **Flood Risk Mitigation:** Captures and manages excess flood waters from during winter months.
- **Soil Quality Enhancement:** Improves soil health through regenerative management and reduced chemical inputs with semi-annual monitoring.
- **Air Quality Improvement:** Eliminates dust-generating activities associated with tree nut harvesting operations.
- **Water Quality Enhancement:** Provides natural filtration and treatment of recharged water.

Unique Features: Large-scale recharge project providing regional-level water management benefits. Includes comprehensive site preparation with 4,500 feet of 12-inch pipe, water control structures, and SCADA system for groundwater monitoring. Achieves significant net water savings compared to planned agricultural development.

RUNNER-UP PROJECT 1: AGAVE CROP B

Project Type: Crop transition to drought-resistant agave with groundwater recharge infrastructure

Conversion Area: 38.6 acres pistachio to agave

Water Savings: 87 acre-feet annually (81.8% reduction in water use)

Total Project Budget: \$1,095,510 | **MLRP Funding Request:** \$1,000,000

Key Features: This alternative agave transition project would convert pistachio orchards to drought-resistant agave cultivation while constructing a 15 acre-foot groundwater recharge reservoir surrounded by native buckwheat habitat. This project would expand drought-resistant crop adoption in a different geographic area while achieving water savings and co-benefits including organic farming practices, habitat creation, and agricultural innovation.

RUNNER-UP PROJECT 2: RECHARGE/FLOOD MANAGEMENT B

Project Type: Combined groundwater recharge and flood management infrastructure

Conversion Area: 30 acres of almond orchards

Water Savings: 88 acre-feet annually plus estimated 1,000 acre-feet average annual recharge

Total Project Budget: \$4,970,546.94 | **MLRP Funding Request:** \$1,000,000

Key Features: The flood-managed aquifer recharge (Flood-MAR) system would complement the primary recharge project by providing additional capacity and geographic distribution. Located near Chowchilla Bypass with existing water rights, the project includes construction of a 30-acre recharge basin with turnout structure, fish screens, and 60-inch reinforced concrete pipeline. Maintains 480 acres of productive almond farming while achieving net groundwater extraction reduction of approximately 50%.

RUNNER-UP PROJECT 3: RECHARGE/FLOOD MANAGEMENT C

Project Type: Combined groundwater recharge and flood management infrastructure

Conversion Area: 30 acres of pistachio orchards

Water Savings: 90 acre-feet annually plus estimated 1,000 acre-feet average annual recharge

Total Project Budget: \$5,234,906 | **MLRP Funding Request:** \$1,000,000

Key Features: This recharge system option would provide comprehensive regional water management through construction of north and south turnout structures with fish screens, gate control systems, and 60-inch reinforced concrete pipe. The project maintains 279 acres of productive agricultural land while achieving approximately 90% reduction in net groundwater extraction. Incorporates comprehensive environmental protections and sediment control measures.

Next Steps

Following the public comment period, the Madera MLRP team will:

1. Review and Analysis: Thoroughly review and analyze all public comments received.
2. Applicant Coordination: Work with selected applicants to address material comments and refine project proposals as appropriate.
3. DOC Submission: Submit final project proposals to the Department of Conservation for comprehensive review and approval.
4. Contract Development: Prepare detailed contract documents for Madera County Board of Supervisors approval.
5. Implementation Launch: Begin coordinated project implementation in Fall 2025.

Anticipated Timeline:

- Public Comment Period: June 11 - June 27, 2025
 - Comment Analysis and Project Refinement (as needed): June 11 – July 11, 2025
 - DOC Submissions: June - July 2025
 - DOC Review and Approval (subject to DOC availability): July - August 2025
 - Contracting: August-September 2025
 - Project Implementation: Fall 2025 - Fall 2035
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Contact Information

Questions or Comments:

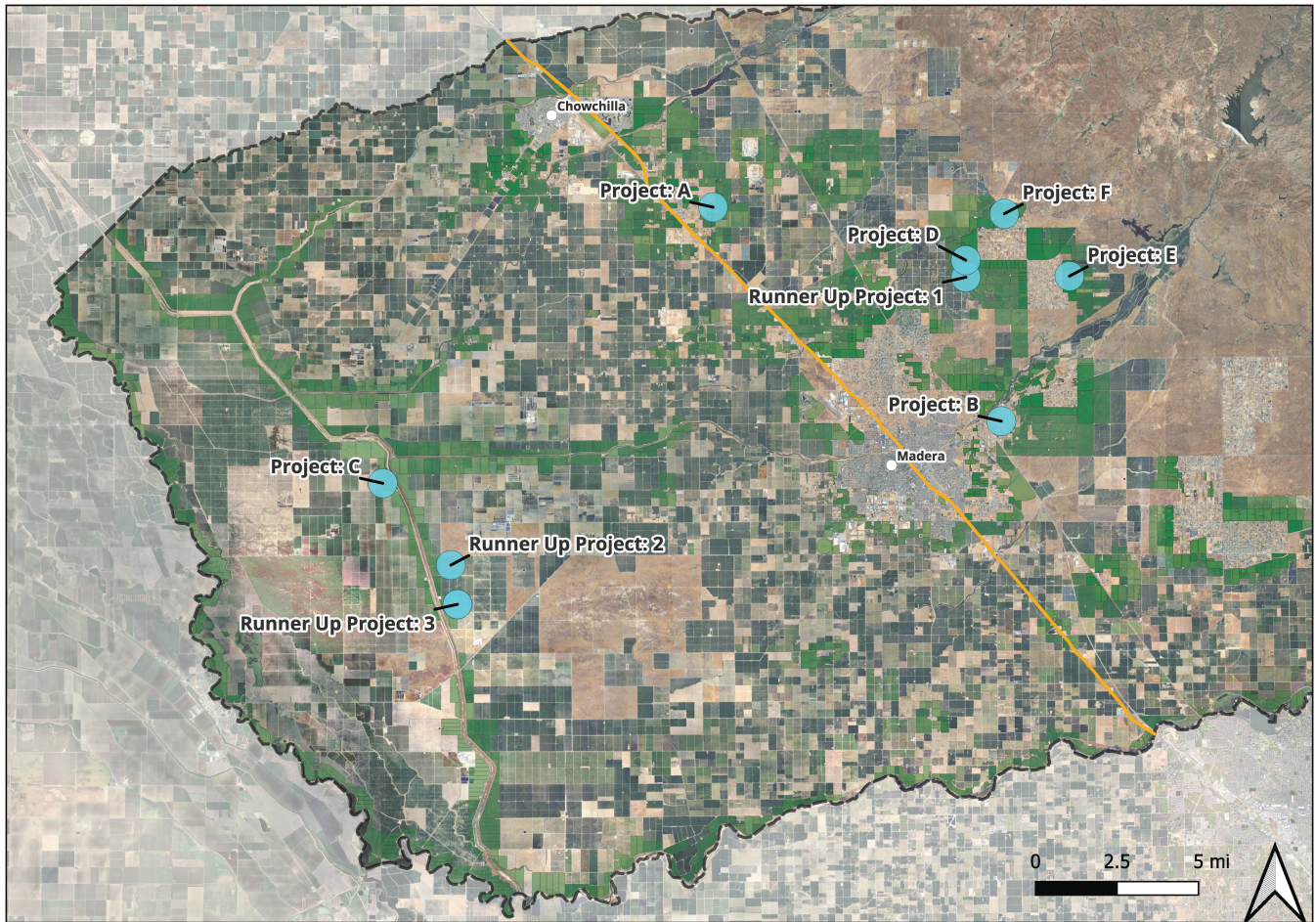
- **Email:** mlrp@maderacounty.com
- **Website:** www.maderacountywater.com/multibenefit-land-repurposing-program

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Appendix



Legend

- Proposed MLRP Projects
- Cities
- HWY 99
- ▭ Madera County Boundary
- Spatial Criteria Alignment

Project A: Stormwater

Multibenefit stormwater management with community recreational space

Project Overview

This project proposes the 10-year repurposing of 17.3 acres of almond orchard near a disadvantaged community to create an integrated multibenefit facility that addresses expressed community needs including flood risk reduction, community recreation, habitat restoration, and water sustainability.

The centerpiece of the project is a 4.5-acre engineered stormwater detention basin consisting of a 4.1-acre main basin plus a 0.4-acre forebay designed to capture and manage runoff from a 200-acre upstream drainage area. This infrastructure will provide stormwater flow protection for the surrounding community, which experiences regular street closures and safety hazards during heavy rainfall events. The basin is engineered to fully accommodate 2-year flood events, most 5-year events, and approximately half of 100-year flood events to reduce downstream flood risks.

Surrounding the stormwater infrastructure, the project will create approximately 10 acres of publicly accessible open space featuring a 2,000-foot gravel walking trail around the basin perimeter, a small parking area, benches, and interpretive signage. This would establish the first public park in the community that currently has no publicly accessible recreational spaces. The public area will be planted with drought-tolerant native habitat including pollinator-friendly species, grasses, shrubs, and flowering plants.

The project is estimated to provide direct water savings of 36.7 acre-feet annually through elimination of almond irrigation, with estimated stormwater infiltration of 47-72 acre-feet annually, totaling significant combined conservation and incidental recharge benefits. The transition from intensive almond production to native vegetation will also eliminate pesticide applications and harvest-related dust, improving local air quality.

Project Location and Context

- **Location:** Disadvantaged community area prone to flooding with declining groundwater levels
- **Land Use:** Currently productive almond orchard planted in 2007
- **Water Access:** Groundwater pumping from on-site agricultural well
- **Parcel Size:** 17.3 acres of a 19.92-acre property

Project Budget and Funding Request

- Total Project Budget = \$1,281,797
- Total MLRP Funding Request = \$881,797

Community-Centered Design and Development

- Extensive community engagement and input in collaboration with landowner.
- Specifically designed for community use and benefits and not just for environmental benefits.
- 10 acres of public open space with a 2,000-foot walking path around a stormwater basin.
- Public access infrastructure includes parking, benches, and interpretive signage.

Infrastructure Development

- Engineering design and permitting for stormwater management system.
- Construction of 4.5-acre detention basin with 0.4-acre sediment forebay.
- Installation of inlet/outlet structures and overflow controls.

Habitat Creation

- Establishment of native vegetation in stormwater basin tolerant of seasonal flooding.
- Creation of 5.4 acres of native habitat in public access area.
- Private grazing area with native grasses, pollinators, and cover crops.
- Integration of habitat corridors throughout project site.

Operations and Monitoring

- Capture and infiltration of stormwater from 200-acre upstream drainage area.
- Annual basin maintenance including sediment removal and revegetation.
- Community engagement through annual events and public access management.
- Long-term monitoring of water quality, habitat establishment, and flood risk reduction.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Eliminates 36.7 acre-feet annually of groundwater pumping while providing 47-72 acre-feet of incidental recharge through stormwater infiltration.
- **Community Benefits** – Meets expressed community needs for recreational space in underserved area with walking trails, open space access, and community event hosting.
- **Flood Risk Mitigation** - Provides 10 acre-feet of detention capacity to reduce peak flows and protect downstream community from flooding events.
- **Air Quality Improvement** - Eliminates agricultural dust and pesticide applications while establishing air-filtering vegetation.
- **Water Quality Enhancement** - Reduces nitrate loading by 1,514 lbs/year and removes 50-80% of sediment from upstream stormwater runoff.
- **Employment Opportunities** - Generates construction jobs and ongoing maintenance employment while supporting potential future income from grazing operations.
- **Innovation and Scalability** - Demonstrates integrated approach combining stormwater management, habitat restoration, community access, and public-private funding structure that can be replicated in similar disadvantaged communities.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	August 2025 - April 2026 (8 months)	Design, permitting, and community engagement
PHASE 2	May – December 2026 (7 months)	Construction of basin and public infrastructure
PHASE 3	January 2026 – January 2036 (10 years)	Construction of basin and public infrastructure

Project B: Tribal/Cultural Space

Unique cultural space benefiting tribal and migrant community needs.

Project Overview

This project proposes the 10-year repurposing of 4.2 acres of irrigated almond orchard into a multibenefit tribal and cultural center that provides dedicated space for indigenous traditional practices, community education, and environmental stewardship. The project includes comprehensive site preparation with almond tree removal, construction of a traditional sweat lodge facility, installation of sustainable off-grid solar energy systems and water management components, and establishment of native pollinator habitat and drought-tolerant landscaping.

The design prioritizes 2,600 square feet of open soil allocated for rotational strip cropping to support traditional indigenous land stewardship practices. Through partnership with a dedicated nonprofit organization and regional community-based organizations, the project directly responds to expressed tribal and indigenous community needs by providing cultivation areas for culturally significant herbs and plants, dedicated ceremonial spaces near traditional healing structures, and educational programs that preserve indigenous knowledge and lifeways.

Community educational programming will include traditional land management practices, indigenous arts and crafts, and cultural preservation activities developed in direct consultation with tribal partners. The center will host annual indigenous cultural celebrations and provide meeting spaces for tribal organizations, creating pathways for intergenerational knowledge transfer and cultural continuity while generating sustainable revenue streams that support ongoing tribal access and programming.

The project is estimated to provide direct water savings of approximately 3.6 acre-feet annually (over 1.17 million gallons) through elimination of almond orchard irrigation, representing a transition from high water-use crop production to minimal irrigation needed for indigenous plant cultivation and establishment of native drought-tolerant plant species.

Project Location and Context

- **Location:** Central Madera County on previously irrigated almond orchard
- **Land Use:** Currently productive 4.77-acre almond orchard
- **Parcel Size:** 4.2 acres of conversion from irrigated agriculture to cultural/community use

Project Budget and Funding Request

- Total Project Budget = \$1,229,974
- Total MLRP Funding Request = \$1,000,000

Tribal, Cultural and Community Infrastructure

- Construction of traditional Temazcal sweat lodge designed and built by indigenous cultural practitioners.
- Installation of structures for community meetings, education, and cultural activities.
- Development of dedicated tribal use areas with rotational strip cropping capabilities.
- Creation of community gardens and permaculture growing spaces.

Environmental and Sustainability Features

- Establishment of native pollinator habitat in partnership with NRCS.
- Installation of off-grid solar energy systems for site operations.
- Implementation of water-efficient irrigation for habitat establishment.
- Construction of composting and waste management systems.

Operations and Community Programming

- Cultural programming including traditional ceremonies and educational workshops.
- Community wellness activities and healing practices.
- Educational programs focused on indigenous knowledge and environmental stewardship.
- Volunteer and internship opportunities for local residents and students.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Eliminates 3.6 acre-feet annually of agricultural groundwater use while transitioning to minimal irrigation landscape.
- **Tribal and Cultural Benefits** - Provides dedicated space for Indigenous traditional practices and cultural preservation with equitable access for tribal communities.
- **Community Education and Wellness** - Creates accessible programming for disadvantaged communities including wellness activities, cultural education, and environmental stewardship training.
- **Employment Opportunities** - Generates construction jobs and ongoing employment through retreat operations, maintenance, and cultural programming.
- **Habitat Creation** - Establishes native pollinator habitat using drought-tolerant species with cultural significance.
- **Air Quality Improvement** - Reduces dust and agricultural chemical inputs while establishing vegetation cover.
- **Soil Quality Enhancement** - Implements regenerative land management practices including composting and organic soil building.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	August - October 2025 (3 months)	Permitting, engineering, and community coordination
PHASE 2	November 2025 (1 month)	Site preparation and tree removal
PHASE 3	December 2025 - February 2026 (3 months)	Infrastructure construction and utility installation
PHASE 4	March - July 2026 (5 months)	Cultural features construction and landscape establishment
PHASE 5	July 2026 - July 2036 (10 years)	Operations, cultural programming, and maintenance

Project C: Recharge/Flood Management

Combined groundwater recharge and flood management infrastructure

Project Overview

This project proposes the 10-year repurposing of 12 acres of actively farmed pistachio land to create a multi-benefit flood-managed aquifer recharge (Flood-MAR) system with renewable energy integration. The project will convert 10 acres of irrigated agricultural land into a groundwater recharge basin designed to capture high-flow surface water during flood seasons, while utilizing 2 acres for solar energy production to power the system operations.

The project includes engineering design and permitting, pistachio orchard removal, construction of a 10-acre recharge basin with variable frequency drive pump system, installation of fish screens and sediment control features, and deployment of a 215 kWh solar photovoltaic system. Operations will involve strategic diversion of flood water from an existing turnout connected to the Chowchilla Bypass, with an estimated capacity to manage 2,200 acre-feet during flood years.

The project is estimated to provide direct water savings of 30 acre-feet annually through elimination of pistachio irrigation on the converted acreage, with an estimated average of 733 acre-feet of recharge annually (accounting for flood frequency), resulting in a net groundwater addition of approximately 82 acre-feet per year.

Project Location and Context

- **Location:** Near priority waterway with existing infrastructure access to flood flows.
- **Land Use:** Currently productive pistachio orchard (part of 166-acre operation).
- **Water Access:** Existing turnout structure connected to Chowchilla Bypass.
- **Parcel Size:** 12 acres of conversion (10 acres recharge basin, 2 acres solar).

Project Budget and Funding Request

- Total Project Budget = \$2,778,845.69
- Total MLRP Funding Request = \$1,000,000

Infrastructure Development

- Engineering design and permitting for Flood-MAR system and solar installation.
- Construction of 10-acre recharge basin with percolation-enhancing features.
- Installation of variable frequency drive pump system with fish screens.
- Deployment of 215 kWh solar photovoltaic system with supporting infrastructure.

Water Management System

- Integration with existing Chowchilla Bypass turnout structure.
- Flow control and sediment management systems.
- Groundwater monitoring and recharge optimization equipment.
- Connection of solar power to pump and operational systems.

Operations and Monitoring

- Seasonal flood water diversion and recharge operations.
- Ongoing maintenance of mechanical components and infrastructure.
- Water quality and flow rate monitoring throughout system.
- Long-term compliance reporting and environmental impact assessment.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Eliminates 30 acre-feet annually of groundwater pumping while providing estimated 733 acre-feet average annual recharge, resulting in net positive groundwater contribution.
- **Flood Risk Mitigation** - Provides strategic flood water management during peak flow conditions, reducing pressure on bypass infrastructure and downstream flood risks.
- **Renewable Energy** - Demonstrates integration of clean energy with water management infrastructure, reducing reliance on grid electricity and fossil fuels.
- **Maintains Working Landscape** - Preserves 154 acres of productive pistachio farming while adding water management infrastructure.
- **Air Quality Improvement** - Reduces dust from eliminated farming operations and decreases emissions through solar energy use.
- **Water Quality Enhancement** - Incorporates natural filtration through recharge basin and sediment control features.
- **Employment Opportunities** - Creates construction jobs and ongoing maintenance positions for operations, monitoring, and compliance activities.
- **Innovation and Scalability** - Demonstrates replicable model combining existing infrastructure utilization with renewable energy integration for water management.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	August 2025 – January 2026 (6 months)	Planning, permitting, and stakeholder coordination
PHASE 2	February - March 2026 (2 months)	Site preparation and land clearing
PHASE 3	April 2026 - September 2026 (5 months)	Infrastructure construction and installation
PHASE 4	October - December 2026 (2 months)	System testing and commissioning
PHASE 5	January 2027 - January 2037 (10 years)	Operations, monitoring, and maintenance

Project D: Agave Crop

Transitioning to agave, a drought-resistant crop, with habitat co-benefits

Project Overview

This project proposes the 10-year transition of 37.27 acres of existing pistachio orchard to drought-resistant agave cultivation combined with groundwater recharge infrastructure. The project will remove existing pistachio trees from 34.27 acres and establish agave plantings, while constructing a 15 acre-foot water reservoir (3 acres, 5 feet deep) surrounded by native California buckwheat habitat to enhance groundwater recharge and support local wildlife.

The project includes pistachio tree removal, soil preparation and agave planting using optimized spacing patterns, construction of a groundwater recharge reservoir with runoff capture capabilities, establishment of pollinator habitat around the reservoir perimeter, and installation of efficient drip irrigation systems for the drought-tolerant agave crop.

The project is estimated to provide significant direct water savings of approximately 83 acre-feet annually through the transition from water-intensive pistachios (2.75 acre-feet per acre) to drought-resistant agave (0.5 acre-feet per acre), while maintaining agricultural productivity and creating additional environmental co-benefits.

Project Location and Context

- **Location:** Madera County agricultural area suitable for alternative crop production.
- **Land Use:** Currently productive pistachio orchard under drip irrigation.
- **Water Supply:** Well water with access to Madera Water District infrastructure.
- **Parcel Size:** 37.27 acres total (34.27 acres agave, 3 acres reservoir).

Project Budget and Funding Request

- Total Project Budget = \$1,095,510
- Total MLRP Funding Request = \$1,000,000

Agricultural Transition

- Removal of existing pistachio trees and land preparation for agave cultivation.
- Establishment of agave plants using sustainable organic farming methods.
- Installation of efficient drip irrigation system optimized for agave water requirements.
- Soil amendments and mulching to enhance water retention and plant establishment.

Water Management Infrastructure

- Construction of 15 acre-foot groundwater recharge reservoir strategically positioned to capture runoff.
- Installation of drainage and runoff control features to direct water into reservoir.
- Integration with existing water infrastructure for surplus water capture during wet years.

Habitat Enhancement

- Establishment of native California buckwheat around reservoir perimeter.
- Creation of pollinator corridors between agave plantings.
- Implementation of organic farming practices to support biodiversity.

Operations and Monitoring

- Long-term agave cultivation and maintenance over 10-year harvest cycle.
- Ongoing reservoir maintenance and sediment management.
- Water usage monitoring and groundwater level assessment.
- Annual reporting on water savings and ecological benefits.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Achieves 83% reduction in water use (from 2.75 to 0.5 acre-feet per acre) while maintaining agricultural productivity and economic viability.
- **Economic Diversification** - Demonstrates innovative crop alternatives that provide income through both 10-year agave harvest and interim hijuelo (clone) sales, supporting agricultural sector resilience.
- **Air Quality Improvement** - Reduces particulate matter from eliminated heavy machinery operations, carbon monoxide from reduced diesel equipment use, and nitrogen dioxide from elimination of synthetic fertilizers.
- **Soil Quality Enhancement** - Implements organic farming methods, eliminates synthetic pesticides and fertilizers, and utilizes agave's deep root structure to improve soil stability and health.
- **Habitat Creation** - Establishes pollinator habitat through California buckwheat plantings and creates wildlife water source, while supporting bee and butterfly populations through agave flowering.
- **Flood Risk Mitigation** - Provides water retention and infiltration through reservoir construction and agave's natural water storage capabilities in soil.
- **Employment Opportunities** - Maintains agricultural employment through continued farming operations and creates opportunities for knowledge development in emerging crop production.
- **Innovation and Scalability** - Demonstrates replicable model for transitioning to drought-resistant crops while maintaining working agricultural landscapes.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	October - December 2025 (3 months)	Tree removal, soil preparation, and construction planning
PHASE 2	January - March 2026 (3 months)	Reservoir construction and infrastructure installation
PHASE 3	April - June 2026 (3 months)	Agave planting and irrigation system installation
PHASE 4	July 2026 - June 2036 (10 years)	Agricultural operations, monitoring, and maintenance

Project E: Buffer Zone

Creating community buffers between agricultural operations and residential areas while providing groundwater recharge

Project Overview

This project proposes the 10-year repurposing of 118 acres of actively farmed almond orchard to create a community buffer zone with integrated groundwater recharge infrastructure on lands near at-risk community and domestic wells and homes. The buffer zone would benefit 24 adjacent residential parcels (21 with residences dependent on domestic wells) and benefits over 250 additional residential properties within a quarter-mile radius. The buffer zone will also help reduce dust-generating harvest operations, and aerial pesticide and herbicide applications to help improve air quality for nearby residents.

The comprehensive implementation plan includes removal of approximately 16,000 almond trees and existing drip irrigation systems, professional tree removal and grinding operations with soil incorporation of organic matter through disc operations, and construction of three engineered recharge basins with associated dikes strategically positioned to capture and infiltrate stormwater runoff from upstream agricultural areas. The flood control infrastructure includes culverts designed to manage overflow during peak storm events while maximizing groundwater recharge during normal precipitation years.

The project is estimated to provide direct consumptive water savings of 324 acre-feet annually, representing a significant reduction in groundwater extraction that supports groundwater sustainability goals. Additional groundwater benefits derive from enhanced natural infiltration rates following removal of compacted orchard soils and the engineered stormwater capture systems designed to annually recharge sufficient water to meet the domestic needs of more than 50 residents during normal rainfall years. The habitat creation components will support native pollinators and wildlife.

Project Location and Context

- **Location:** Immediately adjacent to residential community areas
- **Land Use:** Currently productive almond orchard with dual-line drip irrigation
- **Community Interface:** Borders 24 residential parcels with 21 improved residences relying on domestic wells
- **Parcel Size:** 118 acres of conversion from irrigated agriculture to buffer zone

Project Budget and Funding Request

- Total Project Budget = \$1,364,233.84
- Total MLRP Funding Request = \$1,000,000

Infrastructure Development

- Removal and processing of approximately 16,000 almond trees.
- Elimination of existing drip irrigation infrastructure.
- Construction of three engineered recharge basins with dike systems.
- Installation of culvert structures for controlled water flow and erosion prevention.

Buffer Zone Creation

- Transition of agricultural land to pollinator friendly plant species.
- Soil enhancement through incorporation of ground tree material.

Water Management System

- Strategic placement of recharge infrastructure to capture eastern runoff.
- Engineered dikes designed to retain stormwater for groundwater infiltration.
- Enhanced groundwater recharge in immediate vicinity of challenged domestic wells.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** – Eliminates 324 acre-feet annually of groundwater pumping while providing enhanced natural recharge through stormwater capture systems.
- **Community Protection** – Creates nearly 1,000-foot-wide buffer between agricultural operations and residential areas, eliminating pesticide drift and agricultural dust impacts.
- **Air Quality Improvement** – Reduces dust-producing farming operations adjacent to residential areas.
- **Water Quality Enhancement** – Eliminates application of pesticides and herbicides on 118 acres, reducing potential infiltration to local groundwater supplies.
- **Soil Quality Enhancement** – Cessation of agricultural activities allows natural soil recovery and incorporation of organic matter from processed tree material.
- **Habitat Creation** – Establishes natural habitat corridor for pollinators and wildlife in agricultural landscape.
- **Flood Risk Mitigation** – Provides stormwater detention and infiltration capacity to protect more than 200 downstream residential properties.
- **Employment Opportunities** – Creates construction and land management jobs during implementation phase.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	October 2025 (1 month)	Irrigation system removal and initial tree removal in basin areas
PHASE 2	November - December 2025 (2 months)	Complete tree removal and grinding operations
PHASE 3	January - February 2026 (2 months)	Soil incorporation, basin grading, and dike construction
PHASE 4	February 2026 (1 month)	Culvert installation and infrastructure completion
PHASE 5	March 2026 - February 2036 (10 years)	Monitoring, maintenance, and buffer zone management

Project F: Large Recharge

Large-scale groundwater recharge combined with native habitat restoration

Project Overview

This project proposes the retirement of 50 acres of irrigated agricultural land and its conversion into a flood-irrigated groundwater recharge basin with native California habitat restoration. The project will transform land currently prepared for citrus orchard development into a multibenefit water management and conservation facility that combines groundwater recharge with wildlife habitat creation.

The project features comprehensive site preparation including land leveling, installation of water conveyance infrastructure with 4,500 feet of 12-inch pipe, water control structures (boxes, checks, and risers), and establishment of native grasses, shrubs, and trees designed to thrive in a seasonal flood environment. The system is designed to capture excess surface water from Madera Irrigation District during winter months, providing an estimated 291 acre-feet of annual recharge during flood years (occurring approximately every 3 years).

Combined with water savings from retiring planned citrus production (120 acre-feet annually), the project achieves a total water benefit of 411 acre-feet annually, representing a significant net water savings compared to planned agricultural development. The project emphasizes regenerative land management practices and comprehensive soil health monitoring.

Project Location and Context

- **Location:** Single parcel in Madera County within Madera Irrigation District boundaries.
- **Land Use:** Currently open ground prepared for citrus orchard development, previously almond production.
- **Water Access:** Direct access to Madera Irrigation District surface water for recharge purposes.
- **Conversion Area:** 50 acres converted from planned agricultural development to recharge basin and habitat.
- **Current Status:** Land prepared for permanent planting but available for 10-year retirement agreement.

Project Budget and Funding Request

- Total Project Budget = \$966,554
- Total MLRP Funding Request = \$966,554

Infrastructure Development

- Comprehensive land survey and engineering design by a professional engineering firm.
- Land leveling and grading (60,000 cubic yards) to create efficient recharge basin.
- Installation of water conveyance system including 4,500 feet of 12-inch pipe and turnout structures.
- Construction of water control infrastructure including boxes, risers, gates, and check structures.

Habitat and Environmental Systems

- Native California species establishment designed by Sustainable Conservation and California Native Plant Society.
- Habitat plantings selected for compatibility with seasonal flooding regime.
- Soil health enhancement through living root systems and organic matter improvement.
- Air quality improvements through elimination of dust-generating agricultural activities.

Monitoring and Management Systems

- Semi-annual soil health testing at four monitoring sites.
- SCADA system installation for groundwater depth monitoring.
- Annual water diversion tracking and reporting through Madera Irrigation District.
- Comprehensive environmental monitoring and adaptive management protocols.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Provides 291 acre-feet average annual recharge plus 120 acre-feet conservation from avoided agricultural development.
- **Habitat Creation** - Establishes native plant species and habitat supporting beneficial insects, birds, and biodiversity.
- **Flood Risk Mitigation** - Captures and manages excess flood waters, reducing downstream flooding risks.
- **Soil Quality Enhancement** - Improves soil health through regenerative management and reduced chemical inputs.
- **Air Quality Improvement** - Eliminates dust-generating activities associated with tree nut harvesting operations.
- **Water Quality Enhancement** - Provides natural filtration and treatment of recharged water through soil and vegetation.
- **Community Benefits** - Located to provide water management services while demonstrating innovative land use alternatives.
- **Innovation and Scalability** - Demonstrates integration of groundwater recharge with habitat restoration as a model for regional replication.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	August-December 2025 (5 months)	Survey, design, partner coordination, and baseline soil testing
PHASE 2	January-March 2026 (3 months)	Infrastructure construction and native species planting
PHASE 3	April 2026-April 2036 (10 years)	Operations, annual maintenance, monitoring, and reporting

Runner-Up Project 1: Agave Crop B

Crop transition to drought-resistant agave with groundwater recharge infrastructure

Project Overview

This project proposes the 10-year repurposing of 38.6 acres of actively farmed pistachio orchard to drought-resistant agave cultivation combined with groundwater recharge infrastructure. The project will convert pistachio orchards that currently require 2.75 acre-feet of water per acre annually to agave production requiring only 0.5 acre-feet per acre, while establishing a 15 acre-foot (3 acres, 5 feet deep) groundwater recharge reservoir surrounded by native California buckwheat habitat.

The project includes pistachio orchard removal, land preparation for agave cultivation, construction of a groundwater recharge reservoir with native habitat plantings, installation of efficient drip irrigation systems for agave establishment, and implementation of organic farming practices. The agave will be harvested manually every 10 years, eliminating the need for heavy machinery and associated air quality impacts.

The project is estimated to provide direct water savings of 87 acre-feet annually through the transition from high water-use pistachios to drought-resistant agave, representing an 81.8% reduction in consumptive water use while maintaining productive agricultural operations.

Project Location and Context

- **Location:** Madera County agricultural area suitable for alternative crop production
- **Land Use:** Currently productive pistachio orchard under irrigation
- **Water Access:** Madera Water District with potential access to excess surface water during wet years
- **Parcel Size:** 38.6 acres total

Project Budget and Funding Request

- Total Project Budget = \$1,095,510
- Total MLRP Funding Request = \$1,000,000

Agricultural Transition

- Removal of existing pistachio trees and land preparation.
- Soil assessment and preparation for agave cultivation.
- Installation of efficient drip irrigation system for agave establishment.
- Planting of agave using optimized grid pattern for water conservation.

Groundwater Recharge Infrastructure

- Construction of 15 acre-foot reservoir (3 acres, 5 feet deep).
- Grading and excavation with proper slope for water retention and infiltration.
- Installation of runoff diversion features to capture stormwater.
- Planting of native California buckwheat around reservoir perimeter.

Ongoing Operations and Monitoring

- Transition to organic farming practices eliminating synthetic pesticides and fertilizers.

- Quarterly groundwater monitoring at nearby wells.
- Annual soil quality testing and habitat monitoring.
- Long-term agave management and maintenance over 10-year harvest cycle.

Benefits and Alignment with MLRP Goals

- **Water Conservation** - Achieves 87 acre-feet annual water savings through crop transition, representing 81.8% reduction in water use while maintaining agricultural productivity.
- **Groundwater Recharge** - 15 acre-foot reservoir captures stormwater and excess surface water during wet years for groundwater replenishment.
- **Soil Quality Enhancement** - Organic farming practices and agave's deep root system improve soil health, reduce erosion, and eliminate synthetic chemical inputs.
- **Air Quality Improvement** - Manual agave harvest eliminates heavy machinery use, reducing particulate matter, carbon monoxide, and nitrogen dioxide emissions.
- **Habitat Creation** - Native buckwheat plantings around reservoir provide pollinator habitat and support local wildlife including bees, butterflies, and birds.
- **Flood Risk Mitigation** - Reservoir provides stormwater retention capacity and helps address local drainage issues along adjacent roadways.
- **Employment Opportunities** - Creates jobs for land conversion, agave planting and management, and manual harvesting operations requiring specialized agricultural labor.
- **Agricultural Innovation** - Demonstrates viability of drought-resistant crop alternatives, providing model for regional scaling agricultural adaptation.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	October 2025 – December 2025 (3 months)	Tree removal, soil preparation, and construction planning
PHASE 2	January 2026 - March 2026 (3 months)	Reservoir construction and California buckwheat planting
PHASE 3	April 2026 - June 2026 (3 months)	Agave planting and irrigation system installation
PHASE 4	July 2026 - June 2036 (10 years)	Operations, monitoring, maintenance, and annual reporting

Runner-Up Project 2: Recharge/Flood Management—B

Combined groundwater recharge and flood management infrastructure

Project Overview

This project proposes the 10-year repurposing of 30 acres of actively farmed almond orchards to create a multi-benefit flood-managed aquifer recharge (Flood-MAR) system. The project will convert irrigated agricultural land into a groundwater recharge basin designed to capture high-flow surface water during flood seasons using a new turnout structure connected to the Chowchilla Bypass.

The project includes engineering design and permitting, almond orchard removal, construction of a 30-acre recharge basin with pump system, installation of fish screens and sediment control features. Operations will involve strategic diversion of flood water from the bypass through a self-constructed canal system, with an estimated capacity to manage 3,000 acre-feet during flood years (estimated to occur every 3 years).

The project is estimated to provide direct water savings of 88 acre-feet annually through elimination of almond irrigation on the converted acreage, with an estimated average of 1,000 acre-feet of recharge annually, resulting in a net groundwater addition of approximately 750 acre-feet per year after accounting for GSA leave-behind requirements.

Project Location and Context

- Location: Near Chowchilla Bypass with existing water rights access
- Land Use: Currently productive 510-acre almond operation
- Water Access: Existing water rights to Chowchilla Bypass (valid through 2029 under Senate Bill 1390)
- Parcel Size: 30 acres of conversion from 510-acre farming operation

Project Budget and Funding Request

- Total Project Budget = \$4,970,546.94
- Total MLRP Funding Request: \$1,000,000

Infrastructure Development

- Engineering design and permitting for Flood-MAR system.
- Construction of 30-acre recharge basin with percolation-enhancing features.
- Installation of turnout structure with fish screens (two 20 x 10 x 37 reinforced concrete vaults).
- Construction of gate control boxes and pump boxes for water flow regulation.
- Installation of 60-inch reinforced concrete pipeline for water transport.

Water Management System

- Integration with Chowchilla Bypass through new turnout structure.
- Flow control and sediment management systems.
- Groundwater monitoring and recharge optimization equipment.
- 30 cfs pump system with 59.5 acre-feet daily capacity over 50-day duration periods.

Operations and Monitoring

- Seasonal flood water diversion and recharge operations
- Ongoing maintenance of mechanical components and infrastructure
- Water quality and flow rate monitoring throughout system
- Long-term compliance reporting and environmental impact assessment

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Eliminates 88 acre-feet annually of groundwater pumping while providing estimated 1,000 acre-feet average annual recharge, resulting in an estimated net positive groundwater contribution of 750 acre-feet annually.
- **Flood Risk Mitigation** - Provides strategic flood water management during peak flow conditions, reducing pressure on bypass infrastructure and downstream flood risks.
- **Maintains Working Landscape** - Preserves 480 acres of productive almond farming while adding water management infrastructure, reducing net groundwater extraction by approximately 56%.
- **Air Quality Improvement** - Reduces dust from eliminated farming operations on converted acreage and decreases emissions through reduced groundwater pumping energy use.
- **Water Quality Enhancement** - Incorporates natural filtration through recharge basin and sediment control features.
- **Habitat Creation and Biodiversity Support** - Creates habitat for migratory birds, fish, amphibians, reptiles, and mammals through canal and recharge basin ecosystems.
- **Employment Opportunities** - Creates construction jobs and ongoing maintenance positions for operations, monitoring, and compliance activities over 10-year period.
- **Innovation and Scalability** - Demonstrates replicable model utilizing existing infrastructure and water rights for flood-managed aquifer recharge.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	August 2025 - December 2025 (4 months)	Planning, permitting, and stakeholder coordination
PHASE 2	January - February 2026 (2 months)	Site preparation and land clearing
PHASE 3	March - August 2026 (6 months)	Infrastructure construction and installation
PHASE 4	September - October 2026 (2 months)	System testing and commissioning
PHASE 5	November 2026 - November 2036 10 years)	Operations, monitoring, and maintenance

Runner-Up Project 3: Recharge/Flood Management—C

Combined groundwater recharge and flood management infrastructure

Project Overview

This project proposes the construction of a flood-managed aquifer recharge (Flood-MAR) system that will divert water from the Chowchilla Water Bypass through engineered turnout structures into a canal system and groundwater recharge basin. The project includes the repurposing of 30 acres of pistachio orchards to create a recharge basin, while maintaining 279 acres of productive agricultural land.

The project features construction of north and south turnout structures with fish screens, gate control systems, pump boxes, and 60-inch reinforced concrete pipe for water transport. The system is designed to capture approximately 3,000 acre-feet of water during flood years (estimated to occur every 3 years), providing an average annual recharge of 1,000 acre-feet. The project incorporates comprehensive environmental protections including fish screens to protect aquatic life and sediment control measures.

The project will provide approximately 750 acre-feet of annual groundwater credits. Combined with the 90 acre-feet saved from reduced pistachio irrigation, the project achieves a net groundwater extraction reduction of approximately 91%.

Project Location and Context

- **Location:** Multiple parcels in Madera County near Chowchilla Water Bypass
- **Land Use:** Currently productive pistachio and almond orchard operation
- **Water Access:** Direct connection to Chowchilla Bypass via engineered turnout structures
- **Conversion Area:** 30 acres converted from pistachio production to recharge basin
- **Maintained Agriculture:** 279 acres of productive orchards preserved

Project Budget and Funding Request

- Total Project Budget = \$5,234,906
- Total MLRP Funding Request = \$1,000,000

Infrastructure Development

- Engineering design and construction of north and south turnout structures.
- Installation of fish screen vaults (20' x 10' x 37') to protect aquatic life.
- Construction of gate control boxes and reinforced concrete pump boxes.
- Installation of 60-inch reinforced concrete pipeline for water transport.

Water Management System

- Integration with existing canal infrastructure.
- Flow control and monitoring systems at multiple points.
- Groundwater recharge basin construction and optimization.
- Comprehensive sediment and debris management.

Environmental and Monitoring Systems

- Fish protection systems and habitat preservation measures.

- Water quality monitoring and testing protocols.
- Groundwater level sensors and recharge efficiency tracking.
- Biodiversity monitoring and environmental compliance reporting.

Benefits and Alignment with MLRP Goals

- **Groundwater Sustainability** - Provides net positive groundwater contribution through 1,000 acre-feet average annual recharge minus 25% leave-behind requirement.
- **Flood Risk Mitigation** - Manages peak flows from Chowchilla Bypass, reducing downstream flood risks and infrastructure strain.
- **Water Resource Optimization** - Captures flood water that would otherwise flow to waste, converting it to beneficial groundwater storage.
- **Environmental Protection** - Incorporates fish screens and sediment control to maintain ecological balance and water quality.
- **Agricultural Preservation** - Maintains 90% of existing productive agricultural land while adding water management infrastructure.
- **Air Quality Improvement** - Reduces groundwater pumping energy requirements and associated emissions.
- **Employment Creation** - Generates construction jobs and long-term positions for operations, maintenance, and environmental monitoring.
- **Innovation and Scalability** - Demonstrates integrated approach to flood management and groundwater recharge that can be replicated regionwide.

Implementation Timeline

	TIMEFRAME	ACTIVITIES
PHASE 1	September-October 2025 (2 months)	Planning, permitting, and stakeholder engagement
PHASE 2	November-December 2025 (2 months)	Site preparation and excavation
PHASE 3	January-June 2026 (6 months)	Infrastructure construction and installation
PHASE 4	July-August 2026 (2 months)	System testing and adjustments
PHASE 5	August 2026-August 2036 (10 years)	Operations, monitoring, and maintenance