North Bay Water Quality Partnership Project

SFBWQIF Project 2024-2028

Figure 1. A representative pipe that merges with a box culvert, planned for large trash capture infrastructure project implementation. This site directly outfalls to the Petaluma River. Project will reduce trash by 9.9% the City's baseline trash volume, sourced from priority land use areas and allow for direct cleanup. This project represents five project tasks that the North Bay Water Quality Partner Project will accomplish over the next four years to help meet the requirements of the State Trash Amendments. 38.260702, -122.463629 is the representative point for our regional partnership project. Though no project is located exactly there, it is central to Petaluma, Sonoma, Sonoma County, and Napa Projects.

Partners:

Sonoma City

Petaluma

Napa County

Marin County

Sonoma County

Sonoma County Regional Parks

Laguna Foundation

1. Abstract:

This project bolsters a growing partnership between the City of Sonoma, the City of Petaluma, the County of Napa, the County of Sonoma, Sonoma County Water Agency (Sonoma Water), the County of Marin, and the Laguna Foundation to implement three main project types: (1) Installation of large and small-scale trash capture devices in four separate municipal stormwater systems to meet Phase II MS4 permit requirements and improve water quality, (2) habitat restoration projects to improve water quality in riparian corridors and promote the establishment of Sonoma sunshine, an endangered plant species, and (3) educational outreach throughout the partnering North Bay counties with watersheds that drain to the San Francisco Bay. The projects are rooted in approved CIP programs, SWRP documents, and submitted trash implementation plans. The initiative aims to enhance resiliency against the impacts of climate change by promoting the development of native plants, optimizing the efficacy of interconnecting infrastructure, and implementing a robust stormwater outreach program specific to the local watersheds and requirements of the Phase II MS4 permit.

2. Water quality improvement and wetlands restoration:

This project will be implemented in San Francisco Bay draining watersheds including the Sonoma Creek, Petaluma River, Napa River, and parts of Marin County and follows the four principals of the EPAs Strategic Plan. This project seeks to improve water quality for diverse species and the public downstream by treating urban upstream impairments through trash capture device installation, floodplain connectivity and habitat improvement along waterways, and through engaging public outreach and regional partnerships, which are not only best practices but reinforced by regulatory requirements under the Trash Amendments and our regulating MS4 permits.

Water Quality: Tasks 1.1-1.5 are Trash capture and implementation projects, and are aligned with the EPA Strategic Plan Goal 6, Objective 6.2 to reduce waste and environmental contamination by the implementation of full trash capture devices, meet the regulatory requirements of full trash capture, and inform future trash capture implementation projects regionally with our operations and maintenance study (Task 1.5), and support cities and counties in achieving measurable water quality improvements. Trash has been identified as a statewide priority pollutant that adversely affects beneficial uses, including uses that support aquatic life, wildlife, and public health. Storm drain infrastructure is a priority control mechanism for reducing trash pollution from reaching waterways. Under the Statewide Trash Amendments, permittees are required to reduce the discharge of trash by 100% from the storm drain infrastructure from Priority Land Use Areas (PLUs) into receiving water by December 2030. This ambitious project will install full trash capture devices and treat more than 1038 acres in priority areas throughout the jurisdictions of the City of Petaluma, City of Sonoma, County of Napa and County of Sonoma. The project will conduct assessments and improve tools for implementing trash capture projects that enable bay-draining communities in the North Bay to be in compliance with Trash amendments and future MS4 permits currently in revision that call for increased monitoring, treatment, and public outreach. Trash capture projects are complimented by the habitat improvement projects.

Water Quality and Wetland Habitat improvement projects: Tasks 2.1-2.3 are habitat improvement projects that align with the EPA Strategic Plan Goal 5, Objective 5.2 to ensure clean and safe water for all communities. These projects are creek connectivity projects that allow water to spread and sink during peak flow events, create an urban forest, and expand the restoration of a vernal pool project throughout an already proven restoration site. They align with Goal 1, Objective 1.2 in that they provide on-the-ground localized climate solutions for flooding during peak flows. The connectivity projects increase flood capacity and reconnect drainages with the upland areas by laying back the banks, allowing water to slow, and

facilitate the establishment of transitional seasonal wetland habitat. The project will protect and restore additional areas for vernal pool wetlands implementation of pre- and post-monitoring, and implementation of a water management device to maintain ideal water levels (Task 2.3). The NBWQP project will improve upland and riparian habitat and sequester carbon in improved riparian and upland habitats. It is complimented by trash capture improvement (Tasks 1.1-1.5) and outreach efforts throughout the watersheds (Task 3.1).

Task 3.1 is in alignment with Strategy 3 objective 3.2, promoting environmental compliance through education and outreach. Streets to Creeks is a regional program with cross-connections to compliance, construction, and proper protocols for common infractions by civilians and regulated communities. A robust education and outreach program is essential for water quality. Providing the public with an immersive understanding of how local storm drains connect Streets to Creeks directly with no treatment can help drive behavioral changes to prevent pollution from entering the system. Improving the education and outreach strategy has been identified as an action item for attaining TMDL requirements as part of the current Phase II permit attachment G as well as the TMDL requirements in the forthcoming Phase II permit reissuance and is supported by regional agencies.

3. Project activities:

Tasks 1-2 Water Quality Infrastructure

Task 1. Trash Capture

Task 1.1 Trash Capture Sonoma, Project Activities

- The City of Sonoma will install one large and several small trash capture devices. The City has identified an optimal location for installing a large-scale full trash-capture device on Broadway Boulevard/Highway 12 at Leveroni Rd. This strategic location identified in 2019 On-land Visual Trash Assessments holds the potential to address 441 acres, encompassing 33% of the City of Sonoma's Priority Land Use Areas (PLUs). Preliminary 30% design with engineering suggests that a "Nutrient Separating Baffle Box" (NSBB) is best site-suited due to the hydraulic performance requirements and observed seasonal high groundwater in the area. This task will include environmental review, 100% design, permit application, and complete construction of the large trash capture device project. Additionally, the installation smaller "LittaTrap" trash baskets on the city's western side will treat 14% of the City's PLU areas. The City will monitor and report on the maintenance needs of both designs in Task 1.5.

Task 1.2 Full Trash Capture Device Pilot Study Petaluma, Project Activities

- The Petaluma Full Trash Capture Pilot Program is in the planning stage. The City has performed preliminary through visual assessments and storm system analysis of five different locations and through this grant a final location will be determined. The potential sites for the trash capture device include a site with a drainage area up to 565 acres and covers up to 9.9% of the baseline trash volume. Funds for this task will support environmental review, preliminary design and device identification, construction management, and acquisition and installation of a suitable large trash capture device. Four additional sites for large trash capture are currently identified by the City and are to be informed by the success of this task.

Task 1.3 Trash Capture Napa County, Project Activities

- The County of Napa Full Trash Capture Pilot Program is in the planning stages. Ten storm drains have been preliminarily identified in the airport industrial park which accounts for 95% of the total PLUs within unincorporated Napa County. This task will allow the County of Napa to develop a

preliminary design, acquire and install suitable small trash capture devices and perform biannual maintenance for two years on these devices.

Task 1.4 Trash Capture Sonoma County, Project Activities

- The County of Sonoma has identified two site locations for the installation of six small trash capture devices in unincorporated County MS4, outside the cities of Petaluma and Sonoma. In total, these devices are estimated to treat a combined 120 acres of County PLU area; approximately 4% of the total PLU in the drainage area. Funds for this task will allow the County to pilot the installation and maintenance of six drop-inlet connector pipe screen trash capture devices. Activities covered include product evaluation, purchasing, installation, staff training, routine maintenance, and data collection for two years on device operation and maintenance requirements.

Task 1.5 Implementation of projects resulting in a Maintenance Tracking Study, Project Activities

- During the implementation phase, quantifiable metrics of trash and treatment devices (volume, type, dispersal; size, engineering and location specific requirements, maintenance requirements) will be assessed with standard methodologies.
- Throughout the successful installation process of the trash capture devices, each jurisdiction will undertake the tasks of maintenance and tracking. A year or more of installation and maintenance data will be collaboratively synthesized and summarized in a comprehensive report for planners' consideration. A white paper and a presentation will be shared with regional partners and other jurisdictions planning or advising trash capture device installation.

Task 2. Habitat Restoration: Water Quality improvement of wetland and edge habitat features:

Task 2.1 Fryer Creek Connectivity Project, Project Activities

- The City of Sonoma has identified Fryer Creek Connectivity project CIP-CD-(4) as a priority to treat stormwater originating from upstream developments and cultivate habitat. The project has two priority sites: Site 1. Open Drainage Channel habitat improvement treats 39.74 acres (1,730,958.15 ft^2) east of the Newcomb St neighborhood. The project connects the stream channel to a backwater impoundment, broadens the channel, and lays down the channel edge throughout the feature, allowing for the cultivation of seasonal wetland habitat and connectivity with the floodplain. Actions include recontouring the slopes and removing barriers so water may slow, sink and spread into a created seasonal wetland along the banks of the drainage channel, increase flood control capacity, and create habitat for birds and other wildlife. During the project the public will be engaged through volunteer involvement and through informational signage. Upon project completion, the site will be a thriving diverse habitat with finished fencing and signage to guide the public around the stormwater features. Site 2. Native Forest - Design and build new St. Francis Preserve urban forest along fence and over arching the walkway, creating shade and to treat stormwater before discharging to Fryer Creek. Project creates 0.5 acres of native dense urban forest and improves upland habitat. The forest will transform anopen space into a Miyawaki-inspired forest, increasing the City's climate resiliency and reducing the heat island effect of the surrounding neighborhood. Task 2.1 projects at both Sites 1 and 2 will have annual monitoring, outreach, signage, public stewardship opportunities, and semiannual events.

Task 2.2 Corona Creek Flood Reduction and Habitat Enhancement Project Activities

- This project performs a detailed hydraulic study of the Corona Creek area in preparation for future restoration, including the adjacent Capri Creek improvements, which have never been modeled to

date. Utilizing the City of Petaluma's new flood model, this study will assess and provide recommendations for a more comprehensive stormwater/flood mitigation project to be completed by 2028. The primary objective is to address the present condition of the creek and restore it to design storm capacity, enhance water quality, and reduce out-of-bank flows that have occurred just upstream of the Sonoma Mountain Parkway crossing. A conceptual design will be developed, based on existing contours and opportunity sites for widening, meandering, and slowing peak flows.

Task 2.3 Sonoma Valley Regional Park Vernal Pool Habitat Restoration Expansion, Project Activities

- This project task complements the existing wetland basin restoration progress under the SFBWQIF-funded Sonoma Valley Regional Park Vernal Pools Restoration and Sediment Management task (Task 2.2) of the Southern Sonoma County Water Quality Improvement and Wetlands Restoration Project (SSWQ). Currently, the endangered wildflower Sonoma sunshine (*Blennosperma bakeri*) is successfully planted in three vernal pools since restoration efforts began, and project partners have identified an opportunity to restore an additional 1.5 acres within two adjacent vernal pool wetlands. By creating the conditions to manage hydroperiods in the pool features bisected by an access road and impacted by a culvert set lower than the natural drainage elevation, this task expands the footprint of suitable vernal pool habitat for Sonoma sunshine.
- A water control structure will be installed at the existing culvert in the drainage line currently draining two degraded vernal pools. This allows for a managed and prolonged hydroperiod in these habitats and improves the duration and depth of inundation to better support native vegetation. Monitoring and project design efforts will ensure that the current vernal pool restoration efforts will not be negatively impacted by proposed hydrological changes. Funds for this task cover site surveys, hydrological analysis, plant and soil studies, permitting, monitoring, reporting and conditional seeding of Sonoma sunshine upon restoration success. Additionally, task funds will cover the cost of instruments for monitoring and the water control structure to be be placed along the drainage area. Study data will contribute greatly to our regional understanding of vernal pool and Sonoma sunshine restoration.

Figure 2. Laguna Foundation Staff monitor restoration success of Sonoma Sunshine (Blennosperma bakeri) under a previous SFBWQIF Grant. Task 2.3 will increase the success of this project through water level management, improving success by managing site conditions

Task 3.1 Water Quality Outreach, Streets To Creeks Project Activities

- Task 3.1 Streets to Creeks is a multi-media outreach campaign designed to educate the general population and target communities in specific permit sections on stormwater quality protection and makes it specific to individual creeks. The campaign focuses on educating the public about how activities on land impact our creek system and what actions prevent stormwater pollution. The

campaign is focused on providing messaging on actions to reduce pollution from entering the storm drain and the importance of protecting water quality. The outreach strategy includes targeted messaging on pollution prevention techniques to residents, children, and those performing upstream agricultural activities that adversely affect stormwater quality. It also has allowed established partners to revise handouts relevant to regulating construction and trades, TMDLs for regulated contaminants, and maintenance activities that have impact to the watershed. Delivery of the multi-media campaign will be directed to specific zip codes, guaranteeing local information to each recipient relevant to their region's watershed. The Streets to Creeks campaign will be an inclusive campaign to meet all Phase II MS4 Permit requirements.

- Sections E.7 and F.5.b of the Phase II permit requirement permittees to provide education and outreach to the general public on stormwater topics such as local pollutants of concerns, preventing and reporting illicit discharges, and BMPs for activities like car washing and pesticide application. The outreach requirement is extensive and specific, and includes specific messaging topics, the campaign to be multi-media, student messaging, and Spanish translation. The Program Improvement and Effectiveness Assessments conducted as a requirement of the Phase II permit (as required by sections of E.14 and F.5.h) have demonstrated needed improvement to the current outreach efforts, and future MS4 Phase 2 permit draft sections require increased outreach to the public. To improve compliance strategies with these requirements, the Phase II co-permittee partners have identified utilizing the Streets to Creeks outreach program for its power to address and meet the current and future needs of the permit.
- Draft language of the forthcoming reissuance of the Phase II Statewide general permit suggests that permit requires will include creating a community based social marketing campaign to engage the public around stormwater issues. By undertaking this outreach effort, the NBWQP partners will significantly enhance their ability to meet the elevated outreach criteria outlined in the impending Phase II permit.
- This task will include a collaborative approach for outreach, working with a local marketing firm to help deliver the campaign and track project metrics. The specific outreach strategy will be developed using partnership input from year to year, using a set annual budget. The development of the program will include a mechanism to track actionable items and key performance metrics as part of the campaign.

Task 4. Project management, contracting, reporting, and invoicing, as required by EPA, Project Activities

- Project partners will divide management responsibilities to take advantage of differing areas of expertise. The City of Sonoma will institute management controls to assure that appropriate accounting mechanisms are in place, attend EPA's project management training with a member of Petaluma's Public Works Department, and assure that submittals to EPA meet the requirements. The City of Sonoma will coordinate with partners via regular monthly meetings, typically virtually to reduce costs, to assure adherence to the timeline, and make adjustments as necessary.

4. Climate Change Resiliency:

Downscaled climate projections show southern Sonoma County becoming more arid, with more extreme storms and droughts. Protecting water quality and slowing runoff can buffer human and natural communities against climate change impacts by increasing groundwater recharge, reducing flooding, and extending late-summer streamflow. Slowing runoff also reduces the emissions associated with importing water by replenishing local groundwater supplies. These projects will contribute to climate response by creating green spaces and restoring habitats adjacent to the Sonoma Creek and the Petaluma River.

5. Timeframe:

All activities will take place within four years:

Tasks 1.1-1.4. Environmental results will begin during winter 2026 through EPA-funded public engagement on trash capture, stormwater water quality improvement through trash capture, treatment, public outreach, and habitat restoration. Tasks 1.1-1.4 will commence in 2024 with a matrix structure for data collection for tracking project planning, key decisions, devices and site requirements leading to successful trash capture implementation projects across all partners. Tasks tracked will include the design and engineering processes, device selection, upgrades necessary to install trash capture systems or other green infrastructure, right of way, encroachment, and permitting. Construction and installation of the chosen devices will begin in 2024/25, followed by ongoing routine maintenance. After a year or more of device maintenance, the maintenance tracking and output study will be completed by winter 2026/2027. The installation of trash capture devices and the maintenance study will provide benefits to future trash installation projects.

Task 2.1 will demonstrate significant steps within FY 2023-24 to meet restoration goals by the design of the habitat restoration plan to 60%, and for standing water depths in original features, botanical surveys, and stream flow analysis. Monitoring data will be reported in the water year 2024-2025. Task 2.1 will lead to habitat improvements, stormwater benefits, and opportunities for community level restoration.

Task 2.2 The Corona Creek Flood Reduction and Habitat Enhancement Project will commence in the Fall of 2024 with conceptual design and outreach leading to biological surveys conducted in Spring 2025. Engineering and construction plan preparation to be achieved in FY 2024-25 with additional outreach with neighboring residents and nearby schools during the Spring of 2025. Following environmental and permitting processes, construction will be completed in FY 2026-27. Educational and recreational components will dovetail with monitoring and stewardship activities in the following years.

Task 2.3 The Sonoma Valley Regional Park Vernal Pool Habitat Expansion will kick off in early spring 2024 with site surveys and the purchasing and installation of monitoring instruments to obtain baseline data on the conditions of the study area within the first year. Laguna Foundation will conduct nearly three years of baseline monitoring before finalizing permitting and installing the water control structure in summer 2026. Monitoring and as needed adjustment of the structure will continue for a year after installation, with a final report delivered at the end of 2027.

Task 3 Capitalizes on regional outreach programing for the North Bay region and unifies the messaging regionally. The outreach campaign is set to take place over a four-year time frame, with adaptive management strategies evaluated and amended on an annual basis. Year 1 will begin in winter wet season of 2023 and will focus on establishing messaging and brand recognition throughout the region. Years 2-4 will continue to build off the previous year's messaging, adapting messaging campaigns based off effectiveness and public response.

Task 4 will begin at the time of award and will be led by the project administrators in partnership with all awardees and sub-awardees who are in charge of individual tasks. The monthly invoicing and quarterly updates will be embedded in the operations schedule of each awardee and large-scale project management and coordination will be the responsibility of the grant manager.

6. CCMP Objectives and Actions:

Task 1.1, 1.2, 1.3 and 1.4 (Gray to Green infrastructure tasks) will help achieve CCMP Objective I by reducing contaminants entering the riparian corridor and improving water quality in the SF Bay. Tasks 1.1-1.3 will implement Action 19 and Action 23. To employ Action 19 solutions, tasks will manage stormwater with low-impact development to reduce debris in the Estuary. To address Action 23, tasks will support municipalities and agencies in attaining trash reduction compliance.

Tasks 1.1-1.4 meet CCMP Objective L by presenting pertinent information about trash capture installation, maintenance, increasing regional governance and empowering other jurisdictions in their infrastructure and management transitions to full compliance with the Trash amendments. The partnered approach result in reports about the collective insights gained with small and large Trash Capture projects including project limitations, installation, and maintenance experience.

Task 2.1 will increase habitat quality in the riparian corridor and remove pollutants from stormwater. These tasks will help achieve the CCMP A, B, and F and will implement Action 3 adaptation planning to bring nature-based solutions into land management within the first year of the project and Action 4, adaptation implementation, and Action 13 – protecting, restoring and reducing invasive species. Tracking will take the form of annual monitoring surveys and reporting. Creating connectivity to floodplain features and treating stormwater runoff will achieve CCMP Objectives C and H by applying the best process-based science to the design of seasonal wetland features within the flood overflow areas. The project will meet Action 12 by improving freshwater flow patterns, quantity, and timing for the support of natural resources, and maximizing habitat benefits of living resources and managed wetlands. CCMP Objectives I and J will be met by reducing contaminants in the Sonoma creek watershed through seasonal wetland augmentation and upland connectivity, and by building support for the protection of the Estuary through public engagement.

Task 2.2 This task will achieve CCMP Objectives A, B, F, H, I, and J and will implement Action 3 Adaptation Planning, Action 4 Adaption Implementation, and Action 14 Conserve and Enhance Riparian and Instream Habitats. Task 2.2 will increase flood protection, improve stormwater management, improve water quality, revegetate and enhance the habitat, and increase recreational, educational, and stewardship opportunities. Additionally, the design and analysis of the project will provide input from the schools and residents toward completing the design; improving habitat connectivity; enhancing habitat diversity; increasing opportunities for wildlife for cover, nesting, foraging, and migratory functions; and filtering pollutants from terrestrial runoff.

Task 2.3 will improve vernal pool habitat and maximize restoration potential in the remnant vernal pool seasonal wetland basins within Sonoma Valley Regional Park. This restoration work will support recovery of the endangered Sonoma Sunshine in the region, control the spread of invasive species and provide suitable habitat for native vegetation. This task will achieve CCMP Objectives A, and B and will implement Action 8 to protect, restore and enhance seasonal wetlands. Learnings and scientific data on the hydrology of the pools through an iterative management approach will also achieve Objective C of the CCMP.

Task 3.1 (Streets to Creeks regional outreach) will help achieve the CCMP Objectives B, F, K, and N through targeted public outreach that is aligned regionally and with Action 25. North Bay Water Quality partners will eliminate threats to natural communities, promote multi-benefit projects that increase estuarine resilience, engage communities where the projects are located, with the result of improving estuary health by strengthening regional leadership and stakeholder engagement and bring these regional issues into focus at the local creek and watershed levels.

Task 4.1 Project management implements Action 25 by educating partners, stakeholders, and parties to this grant about the priorities in the Estuary Blueprint and provide reliable information to inform decisions that improve Estuary health. By leveraging a grant, we will be able to increase the awareness of issues impacting and impairing the estuary.

7. Outputs and Outcomes:

Outputs	**Outcomes**	
	Short-term (5 years)	Long-term (10 years)
1.1 Install a large trash capture device at Leveroni Rd and Broadway Blvd. CD-3 CIP plan followed to treat a drainage area of approximately 441 acres and cover a reduction of 33.7% of the baseline trash in Sonoma. Install small *Littatraps* to treat 14% of PLU areas. Track decisions throughout construction and maintenance contribute to the Maintenance Tracking and Output Study to inform regional trash capture projects.	Installation results in reductions of trash loading by approximately 480 gal/yr compared to preinstallation assessment. Track Operations and maintenance requirements and update partners on Maintenance Tracking and Output Study, present to BAMSC and CASQA Phase II Committees.	Meet requirements of Phase II MS4 permit and City's environmental goals. Maintain trash capture device for operational capacity. Reduce trash through capture and secondary control measures. Green infrastructure projects support this project.

1.2 Perform a full trash capture device pilot implementation that involves: Install a full trash capture device at a location to be determined that serves priority metrics. A prioritized location list including 5 different sites were evaluated and based off of the drainage area, existing infrastructure, and accessibility, one location was chosen for the pilot. See Appendix 1.2 Photos and map for proposed location and drainage area for future treatment sites.	Possible pilot implementation sites include one site with a drainage area of approximately 565 acres and covers 9.9% of the baseline trash volume in gallons. Experience in trash capture facility choice, installation, and operation. If the pilot program is successful, install two more capture devices, one every other year. Treat up to an additional 8% more of the baseline trash volume in gallons.	Assess evaluation of the trash capture pilot device. Assess evaluation of additional trash capture project locations, if applicable. Install up to five total trash capture devices if the pilot program is successful.
1.3 Treat 10 trash-impacted storm drains in unincorporated Napa County PLU areas by installing a series of small trash capture devices in storm drains that are not suitable for large trash capture devices or possible Caltrans partnership opportunities. Prioritized locations are within the airport industrial area and drains either to Sheehy Creek or Fagan Creek.	Successful installation of ten small trash capture devices into trash impacted storm drains. Guidelines for trash capture device installation, operation and maintenance fully integrated into County Public Infrastructure tracking and standard work protocols	Full compliance with the trash requirements of Napa County's Phase II MS4 permit Long term trash reduction in Sheehy and Fagan Creeks, which connect to the Napa River, through routine operation and maintenance of trash capture devices
1.4 Treat 6 trash-impacted storm drains in unincorporated Sonoma County PLU areas by installing a series of small trash capture devices at two prioritized locations 1. Marty and Madrone Rd. 2. Petaluma Blvd N and Skillman Ln Device maintenance requirements and management decisions tracked throughout pilot study	Successful installation of small trash capture devices in six storm drains, providing trash treatment to approximately 120 acres Guidelines for trash capture device operation and maintenance integrated into County Public Infrastructure tracking and work protocols	Full compliance with the trash requirements of Sonoma County's Phase II MS4 permit Long term trash reduction in Petaluma River and Sonoma Creek through routine operation and maintenance of trash capture devices

1.5 The Maintenance Tracking and Output Study Joint Report. Presentations and white page contribute to the regional conversations around trash capture compliance, logistics, maintenance, and early discovery of issues that constrain and direct project direction earlier in the implementation process.	Regional collaboration and information sharing were presented 6 + times. Quantitative pre/post trash concentrations evaluated in receiving waters. Report data available to partners and other jurisdictions assists decisions	Results of this study help guide other municipalities to make informed decisions on trash capture device installation.
2.1 Fryer Creek Connectivity Project • Design, installation of approximately 0.41 acres of seasonal wetland • Annual monitoring for vegetation, hydrological retention and duration. • Design & installation 0.55 acres of urban forest over path • Peak flow volumes reduced -20cfs • 2 community outreach events	Filter pollutants and improve water quality. Seasonal wetland features attenuate, treat stormwater Reduction of sediment load within creek and scour at downstream edge of the project. Create urban forested stand.	Increased cover with target native vegetation and increased habitat diversity 2-4 public stewardship events annually bring more awareness of how wetlands create resiliency and multi-benefit solutions to flood plain connectivity projects.
2.2 Corona Creek Flood Reduction and Habitat Enhancement Project • Restoration of 10.5 acres from Riesling Rd to Sonoma Mt. Pkwy. • Increase hydraulic capacity. • Sediment and debris removal. • Reduction of sediment load. Reduce blockages downstream. • Revegetation and habitat enhancement. • Community restoration events.	Reduced sediment and debris within the creek corridor. Increase recreational and educational opportunities. Increase of species living within and traversing the riparian corridor. Increase of sense of ownership of creek corridor with + 50% participation.	Reduction of peak flow volumes and velocity during storm events. Channel recontouring and construction of flood terraces reduce peak flow velocities. Improved habitat for birds and riparian mammals and other species. Stewardship actions increase over 10 yrs.
2.3 Sonoma Valley Regional Park Vernal Pool Habitat Restoration Expansion • Restoration of 5 total acres of vernal pool habitat	Propagation and reintroduction of endangered annual plant *Blennosperma bakeri* (Sonoma sunshine).	Preservation of eastern-most known occurrence of Sonoma Sunshine. Gains toward recovery of a federally listed endangered species.

• Baseline hydrological monitoring data, soil and vegetative surveys • Increased suitable habitat for endangered Sonoma Sunshine	Insights into optimal hydrology for vernal pool habitat recovery.	Long-term monitoring dataset to inform understanding of optimal conditions for vernal pool restoration.
3.1 Streets to Creeks Multimedia outreach campaign Informational website for each jurisdiction with metrics of more than 3000 engagements Social media toolkit Digital ads reaching population Audio and video files Pollution prevention, construction, and BMP factsheets updated Bi-lingual Spanish - English outreach materials and creek protector program	Increasing engagement regionally, engagement of 15000 children by year 3/with two or more schools participating per jurisdiction. Increase in number of events year over year. Goal of 12 million impressions each year across project partners and media types.	Improved water quality due to behavioral change. Reach a growing body of the populace, transform local understanding of issues facing local creeks. Decrease in: Litter, pathogen sources and concentrations, nutrient pollutants, sediment pollutants
4.1 Administrative project management, reporting, & invoicing.	Project Management Report on time and complete.	Regional capacity increases with collaboration.

8. Output and Outcome Metrics:

Task 1.1, 1.2, 1.3, and 1.4 (Gray to Green trash capture infrastructure tasks) installation of large and small trash devices in the Cities of Sonoma and Petaluma and the Counties of Napa and Sonoma allow these agencies to meet the Trash amendments of 2015. The project improves water quality in Sonoma Creek, Petaluma River, and Napa River and their tributaries by capturing 100% of the trash greater than 5 millimeters in the stormwater system that drains to the SF Bay. The sections of the storm drain systems to be treated represent significant treatment opportunities for the jurisdictions involved. In Sonoma, 33.7% of the PLUs and 18.5% of the Non-PLUs within the City's jurisdiction are treated by the planned trash capture project at Leveroni Rd and Broadway Blvd, and 14% are to be treated in small trash capture. In Petaluma, 4.5% of the PLUs are treated by the planned trash capture project. In the County of Napa approximately 10% of the total storm drains within PLU areas are treated by the planned trash capture project. Each trash capture project will produce products throughout planning and implementation that will contribute to the operations and maintenance study (Task 1.5) including feasibility study, cost analysis for all budgeted aspects of installation, a summary of the limitations leading to location or device selection, and tabulated insights relevant to trash capture project implementation and overcoming project impediments. Projects under Tasks 1.1-1.4 will build capacity with our regional partners such as Caltrans (right of way), CDFW (environmental permits), and strengthen our capacity to address trash and other toxins within out jurisdictions and improving environmental conditions in receiving waterbodies.

Task 1.5, The Maintenance Tracking and Output Study, will produce a recommendation document and public presentation for informing future trash capture infrastructure project planning for regional permitees as they work to meet the 100% trash capture requirements of the Trash Capture amendments and our future stormwater permits. Tabulated data and insights from Trash Capture projects from initiation to installation in Tasks 1.1.1-1.1.3 will be compiled in the study by 2026.

Task 2.1 The Fryer Creek Connectivity Project creates seasonal wetland and upland forested stands that improves habitat and allows for treatment of stormwater. With the removal of 650 cubic yards of material, the project augments the adjacent backwater overflow feature that currently only fills during rain events and allows it to capture and store peak flows from the channel. Project covers feature design, construction of wetland features and planting, update of permits, native seasonal wetland planting planning, and pre- and post-construction monitoring. Project creates diverse habitat, slows and treats stormwater prior to discharge at H6 outfall at Broadway and Fisher Ln (38.271974, -122.460893) which is just south of Trash Capture project to treat stormwater from 33% PLU areas.

Task 2.2 The Corona Creek Flood Reduction and Habitat Enhancement Project will increase flood protection, improve stormwater management, improve water quality, revegetate and enhance the habitat, and increase stewardship. The project plans to achieve these goals by channel recontouring and construction of flood terraces to reduce peak flows and velocities, providing improved habitat for birds and riparian mammals and other species, reducing sediment and debris within the creek corridor, and increasing recreational and educational opportunities. Successful implementation of the goals will result in a reduction of peak flow volumes and velocity during storm events, reduction of sediment load within creek blockages at the downstream edge of the project, an increase of species living within and traversing the improved riparian corridor, and an increase of sense of ownership of the creek corridor. Within the first five years, the project aims to reduce sediment and debris within the creek corridor and increase recreational and educational opportunities through community outreach and engagement. The project seeks to channel recontouring and construction of flood terraces to reduce peak flows and velocities in the long term.

Task 2.3 The project Sonoma Valley Regional Park Vernal Pool Habitat Restoration Expansion will restore additional suitable habitat for native vernal pool species, including the endangered Sonoma Sunshine, within Sonoma Valley Regional Park. The project plans to achieve these goals first by monitoring the hydrology of the project area and coupling the data with plant and soil surveys to establish baseline environmental parameters. Laguna Foundation will then install an in-line structure (either a weir or Agridrain) in the drainage area to allow for careful adjustment of flow, thereby increasing the hydroperiod of the downstream wetland basins. This work, coupled with restoration and seeding in the following year, will expand the restoration area in Sonoma Valley Regional Parks to 5 acres by the end of the grant period. After five years, Laguna will have a detailed dataset that characterizes the optimal conditions for vernal pool restoration in this location and the project area will have been carefully monitored and successfully seeded with Sonoma Sunshine. Long term outcomes will include measurable advances towards the recovery of Sonoma Sunshine in this location, as well as an expanded, novel knowledge base of optimal hydrological and environmental conditions to inform future vernal pool restoration projects.

Task 3.1 Stormwater Outreach - Streets to Creeks Education and outreach outputs are based on deliverables of the campaign including multi-media outputs and promotion of the Creek Protector campaign. The campaign will include several engaging outputs, including an immersive website, audio for use on local radio, video for city and county websites, digital ads and social media campaign, pollution prevention and BMP fact sheets. Materials will also be made available in Spanish. Short-term outcomes include the 12 million people to receive targeted messaging annually. This is an estimated value anticipated over the four years of the campaign. Long-term outcomes include the reduction in pollution through behavioral changes including decrease littering, increase in proper pet waste management, increase in proper disposal of waste products. This will result in the decrease of pollutant sources, such as pathogens,

trash, nutrients, and sediment. Streets to Creeks has a footprint in Napa, Marin, and does not yet have a footprint in Southern Sonoma County Sonoma Creek Watershed and filling in the gap between regional partners and unify the message for adult populations is key to our regional success to meet the increasing requirements for outreach required by section E7 and E10 in our current permit and informal draft small permit reissuance of the Traditional permit section D (D2, D 3.6, D5.6, and reporting D10.3). Coordination of the program in such a way that it ties in with Sonoma Water and other partners and agency approaches to Stormwater outreach is the crux of why Streets to Creeks is so important to our regulated work. Street to Creeks is profoundly more effective than OWOW and creates the ability to connect with those who have an effect on the environment while otherwise not participating with in-person outreach (broader audience than baseline methods). The avenues of outreach include social media, radio ads, and as such are effective at doing outreach to uniquely difficult populations to engage.

9. Geographic Location:

Sonoma Creek Watershed: The Sonoma Creek watershed is north of San Pablo Bay, spanning 166 square miles. The watershed ranges in elevation from sea level to the peak of Bald Mountain at 2,739 feet and empties into San Pablo Bay east of Sears Point.

Petaluma River Watershed: The Petaluma River is located in southern Sonoma County and a portion of northeastern Marin County. The Petaluma River Watershed encompasses a 146 square mile pear-shaped basin. The Petaluma River empties into the northwest portion of San Pablo Bay.

Napa River Watershed: The Napa River is approximately 50 miles long with a watershed encompassing 426 square miles, ultimately discharging into the San Pablo Bay portion of the San Francisco Estuary. The Napa River and 47 tributaries are a wilderness heart of an urbanized agricultural valley.

Urbanized Watersheds within Marin County: The County of Marin's main urbanized areas are located in the eastern portion of the County and drain to San Pablo Bay. This includes Novato Creek, San Rafael Creek, Ross Valley and Richardson Bay watershed. Watershed habitats support diverse flora and fauna.

Novato Creek, Rush Creek, Miller Creek, Gallinas Creek, San Rafael Creek, Ross Valley, Richardson Bay

10. Budget Detail: This project builds a cost-effective approach to meeting Trash amendment goals, reducing water pollution, improving impaired wetland and creek habitat, and celebrating the estuary and it's tributary North Bay watersheds through stormwater outreach, beyond the duration of the grant. EPA funds will allow agencies to intensify their individual and combined capabilities to control flows of trash and pollutants into streams. Partnerships between local governments with demanding water quality mandates and entrepreneurial, science-driven nonprofits will lead to the better-informed implementation of trash infrastructure projects, improved habitat and restoration design, and outreach practices. The following table demonstrates our budget summary. A detailed budget is attached.

10. Budget Detail:

Please see SF424 and Budget Detail, submitted with this document

Task / Organization	Grant Funded	Match	Total
1.1 Trash Capture City of Sonoma Leveroni	$281,982	$281,982	$563,964
1.2 Trash Capture Petaluma	$358,816	$358,816	$717,632
1.3 Trash Capture Pilot Napa	$22,809	$22,809	$45,618
1.4 Trash Capture Pilot SoCo	$45,452	$137,005	$182,457
2.1 Fryer Creek Connectivity Project	$106,077	$106,077	$212,154
2.2 Habitat Restoration Corona Creek	$325,368	$325,368	$650,736
2.3 Vernal Pool Restoration SVRP	$117,133	$28,895	$146,028

3.1 Water Quality Outreach	$74,246	$192,430	$266,676
4.1 Project Management and Reporting	$194,738	$73,336	$268,074
TOTAL	**$1,526,621**	**$1,526,718**	**$3,053,339**
Task / Organization	**Grant Funded**	**Match**	**Total**
TOTAL	**$1,526621.21**	**$1,526,718.04**	**$3,053,339.25**

11. Programmatic Capability and Past Performance History:

Collectively the project partners have experience and expertise to successfully manage the proposed project. The NBWQP partners have consistently fulfilled all contractual obligations in previous projects, exemplified by our punctual adherence to reporting deadlines, meticulous billing procedures, and the on-schedule, within-budget delivery of final deliverables across various projects.

Grant Manager	Grant Fund	Project	Funding Amount
City of Sonoma	Prop 68 – Park Improvements	Plaza Improvements	$231,263
City of Sonoma	Habitat Conservation Fund	Sonoma Overlook Trail – Phase I	$55,113
County of Sonoma	EPA SFWQIF	C3SC / SSWQ Projects	$2,139,156 / $2,110,774
City of Petaluma	DWR 2021 Urban and Multi-benefit Drought Relief	Adobe Road Recycled Water Pipeline Extension/ Aquifer Storage and Recovery Plan/ Advanced Metering Infrastructure Project	$2,900,000 / $450,000 / $7,500,000
City of Petaluma	2021 Reclamation Title XVI (NBWRA)	Maria Drive Recycled Water Pipeline Extensions (Urban)	$804,427
City of Petaluma	2023 DWR SMGA Implementation	Maria Drive Recycled Water Pipeline Extensions (Urban)	$2,600,000
City of Petaluma	2021 Reclamation Title XVI (NBWRA)	Adobe Road Recycled Water Pipeline Extension (Agricultural)	$1,400,000
City of Petaluma	2021 Reclamation Title XVI (NBWRA)	Tertiary Treatment Expansion Project	$4,716,000
City of Petaluma	2019 IRWM Prop 1 (NBWRA)	Tertiary Treatment Expansion Project	$3,600,000
City of Petaluma	2022 SWRCB Water Recycling Funding Program	Recycled Water Facilities Planning, Integrated Water Master Plan	$226,311

City of Sonoma

The City of Sonoma has effectively managed cooperative funding agreements, as listed above. Additionally, the City has successfully undertaken two federally funding Caltrans projects, including required reporting.

Erica Warren coordinates the Phase II MS4 permit for the City of Sonoma. With 13 years of experience in restoration, outreach, and public partnerships, she brings dedication to programmatic success.

City of Petaluma

Chelsea Thompson is the Deputy Director of Environmental Services at the Ellis Creek Water Recycling Facility for the City of Petaluma. She has 13 years of experience in all roles of the Environmental Services Department including, Water Quality, Groundwater, Wastewater, and Environmental Lands Management.

Oriana Hart leads the Water Resource Department for the City of Petaluma, a professional with twenty years of experience in stormwater, water, and program management.

Patrick Pulis is the Environmental Services Supervisor at Ellis Creek Water Recycling Facility for the City of Petaluma. The Environmental Services group is responsible for meeting all requirements of the City's MS4 permit. He has over 10 years of experience working in the stormwater and wastewater fields.

Dannielle Favela is an Environmental Services Analyst in the Water Resources Department for the City of Petaluma. She has 7 years of experience working in the City's various Environmental Services programs including Stormwater, Water Conservation, and public outreach.

County of Napa
Jeff Skinner is the stormwater program manager for the Couty of Napa and coordinates the Napa Countywide Stormwater Pollution Prevention Program (NCSPPP). He has 26 years of municipal stormwater experience including storm drain maintenance, construction inspection, and program management.

County of Sonoma
Alisa Keenan is a Senior Environmental Specialist with the Sonoma County Permitting and Resource Management in the Natural Resources Division. Her work includes implementing the County's MS4 permits and managing the SFBWQIF-funded Southern Sonoma Water Quality and Habitat Restoration project.

Sonoma Water
Kevin Booker has over 20 years of experience as an engineer at Sonoma Water. Kevin brings experience in coordinating stormwater education and outreach programs, including Streets to Creeks.

Laguna Foundation
The Laguna de Santa Rosa Foundation staff bring 45+ years of experience in vernal pool restoration and will monitor and determine suitability of vernal pool restoration site for hydrological control (Task 2.3).

12. Expenditure of Awarded Grant Funds:

Project partners will divide management responsibilities based on region and expertise. Each jurisdiction will manage their own trash capture and habitat improvement projects. Sonoma Water will track the Trash operations and maintenance study on a quarterly basis and assist in project reports. The County of Sonoma office of PRMD will manage the Streets to Creeks contract. The City of Sonoma accepts award, City of Petaluma and other available team members will attend EPA's project management training with members of the project team and ensure that submittals meet EPA requirements. The City of Petaluma will coordinate with partners via regular remote meetings, ensure adherence to the timeline, and submit reports.

13. Partnerships:

This project builds on existing local intergovernmental partnerships, including partners with authority over water quality and land use. Letters committing match and programmatic support are in Appendix A.
The project applicants are the Cities of Sonoma and Petaluma, The County of Napa, the Sonoma County Water Agency (Sonoma Water), Sonoma County Permitting and Resource Management (PRMD), Sonoma County Regional Parks (SCRP), Sonoma County Public Infrastructure (SCPI), Marin County, and the Laguna Foundation. Under the umbrella of water quality improvement, two main themes run as a through-line within this project proposal: 1. improving community engagement and information distribution regionally throughout the areas of Southern Sonoma, Napa County, and Marin County that drain to SF Bay. 2; sharing key takeaways from our collective implementation projects. Targets for these communications endeavors are the public and regulated communities.

All jurisdictional partners are invested in improving water quality through three project types 1. implementation of trash capture infrastructure solutions to lessen impacts on receiving waters; 2. working to improve habitat quality to improve resilience through wetland restoration and watershed connectivity;

3. increase "legional" communications and implementation capacity within our partnership and externally with our larger regulatory community of Phase II MS4 permittees. The Cities and Counties provide guidance on the stormwater outreach program and operate, maintain, and upgrade the respective stormwater systems. This public infrastructure is the foundation that connects the partners and enables infrastructure, habitat-scale, and community-wide education projects to be planned in the region. The Maintenance Tracking and Output Study is an excellent example of our participatory partnership and capitalizes on the public-service capacities of the partners. The study results in the tracking of all of our activities and supports our regional partners (BAMSC member agencies) in their future trash capture projects.

The nonprofit partner Laguna Foundation is the scientific leader in vernal pool restoration projects to improve water quality and achieve restoration success in Sonoma County. Laguna Foundation's participation allows for this project to join a portfolio of vernal pool habitat restoration projects with a vision for restored vernal pools in Sonoma Valley. Regulatory agencies with jurisdiction over the proposed habitats to be restored will continue to be solicited for project inputs.

The Public Works Departments leading the implementation projects are the primary land use authorities for all Sonoma Creek watershed projects. The Cities and Counties implement the Phase II MS4 permits in the jurisdictions, ensure that projects comply with environmental regulations, impose conditions of approval on development projects, manage the stormwater program, and are responsible for attaining compliance with the State Stormwater Permits and Trash Capture Amendments. The Cities and Counties work closely with the Sonoma Water and State and Federal regulatory agencies on water quality and flood risk reduction projects. Public Works Departments manage the operations of potable water, wastewater, recycled water, and stormwater systems.

Outreach efforts are achieved with close support from staff and governmental leaders in management and elected officials. The partnership will enable all applicants to join the Streets to Creeks community outreach program and to implement targeted trash capture infrastructure implementation projects that target trash produced in industrial zones. All applicants have proposed trash capture projects that represent significant gains towards full compliance with the Trash Capture Amendments to the Phase II MS4 Permits. All project partners will communicate lessons learned with the regulated water and land management resource managers in their region's regulated and professional communities. As Co-Permittees the Cities of Sonoma and Petaluma and Sonoma Water participate in a collaborative approach to implementing stormwater BMPs. This includes coordinating on a monthly basis as part of the Bay Area Municipal Stormwater Collaborative Phase II subcommittee, Phase II MS4 permit reissuance processes, and implementation of TMDL action plans, as applicable. This grant application allows applicants and sub-awardees to align with our regional regulatory compliance efforts and meet our ambitious habitat improvement goals in partnership with leaders from the natural resource community.