



## **Wyandotte Creek Advisory Committee (WAC)**

**September 1, 2022, 9:00am-11:00am**

### **Meeting Location:**

Thermalito Water and Sewer District  
410 Grand Avenue, Oroville, CA 95965

***In-Person only***

## **WAC MEETING AGENDA**

### **1. ROLL CALL**

### **2. BUSINESS FROM THE FLOOR**

The public and WAC members will have an opportunity to comment on items not on the agenda and that are relevant to the WAC. Committee members and Management Committee staff are not required to respond to any issues raised during the public comment period. Commenters are asked to respect differing perspectives and to keep remarks within three minutes.

### **3. \*Approval of Meeting Summary for the 4/7/22 WAC Meeting**

### **4. \*Discussion and possible recommendation regarding Projects and Management Actions and the Sustainable Groundwater Management Implementation Grant (Christina Buck, Butte County, Water and Resource Conservation)**

### **5. Management Committee Update (Informational)**

- a. Funding by Board of Supervisors
- b. Amend Agreement- specify roles and responsibilities of the County
- c. Long-term Financing

### **6. Committee Members Wishing to Address Items not Listed on the Agenda**

- a. The WAC is prohibited by state law from taking action on any item presented if it is not listed on the agenda.

### **7. Adjournment**

The Committee will adjourn to their next meeting, likely to be scheduled for late October.



## Wyandotte Creek Advisory Committee (WAC)

April 7, 2022, 9:00am-11:00am

### In-Person Meeting Location:

Thermalito Water and Sewer District  
410 Grand Avenue, Oroville, CA 95965

## WAC MEETING SUMMARY

### 1. ROLL CALL

Present in person: Loni Lind, Kristen McKillop, and Duke Sherwood

Member Agency Staff Present: Chris Heindell, Thermalito Water and Sewer District and Christina Buck and Kamie Loeser, Butte County in-person; Matt Thompson, City of Oroville, via Zoom for a portion of the meeting.

### 2. BUSINESS FROM THE FLOOR

None

### 3. Approval of Meeting Summary for the 9/2/21 WAC Meeting

The Committee accepted the Meeting Summary.

### 4. Review of the 2021 Water Year Annual Report for the Wyandotte Creek Subbasin (Informational, Christina Buck, Butte County, Water and Resource Conservation)

Staff presented the contents of the 2021 Annual Report submitted to the SGMA Portal by the regulatory deadline of April 1, 2022. WAC members asked clarifying questions and pointed out the importance of adding more monitoring locations in the subbasin.

### 5. Management Committee Update (Kamie Loeser, Management Committee)

- a. Future discussion with Board on GSP Implementation and SGMA Grant Program (Informational)

Staff provided an update on the intent to discuss with the Board of Supervisors the short and intermediate term financial needs of the GSAs in Butte County to maintain compliance with SGMA.

### 6. Consideration of 2022 WAC Meeting Schedule (Kamie Loeser, Management Committee)

Staff presented a proposed meeting schedule. Meetings will be canceled if not needed. The Committee accepted the meeting schedule.

# Wyandotte Creek

GROUNDWATER SUSTAINABILITY  
AGENCY

7. **Committee Members Wishing to Address Items not Listed on the Agenda**  
None
8. **Adjournment**  
The Committee adjourned.



## MEMORANDUM

DATE: August 19, 2022  
TO: Wyandotte Creek Advisory Committee (WAC)  
FROM: Christina Buck, Asst. Director, Butte County Water and Resource Conservation  
RE: Project and Management Actions and SGM Implementation Grant

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### Overview

The Department of Water Resources (DWR) is administering the [Sustainable Groundwater Management \(SGM\) Grant Program](#) which will provide Groundwater Sustainability Agencies (GSAs) funding to help implement projects and implementation activities identified in their Groundwater Sustainability Plans (GSPs). The Final [Guidelines](#) and [Proposal Solicitation Package](#) (PSP) describing project eligibility and the application process were released in December 2021.

The Wyandotte Creek Subbasin is categorized as a “medium priority subbasin” and is eligible for Round 2 of this funding opportunity. The timing is still uncertain, but the solicitation is expected to open late 2022 or early 2023. Grant awards will be a minimum of \$1 million per subbasin and up to \$20 million per subbasin. There must be one application submitted for the subbasin, but it can include multiple projects that could be implemented by multiple agencies.

The main content of the SGM Grant Program application is the submission of a work plan, budget and schedule for each project. That is, each project needs to clearly and consistently describe what will be done (tasks/subtasks and deliverables), for how much money, and over what time frame. Most of the projects or implementation activities in the Wyandotte Creek GSP are not described or developed out to this level of detail. Therefore, there is a need to dedicate time and resources to develop this level of detail for any project the GSA wishes to consider for inclusion in the grant application. This is especially evident by the fact that most of the GSP projects list “To Be Determined (TBD)” for the project cost. To be able to prioritize these projects for consideration of funding, additional effort is needed to estimate the cost of any given project. Therefore the question is, “which projects should be moved forward with this additional effort?”

The Board of Supervisors approved a budget for the Department of Water and Resource Conservation that included resources to support development of SGM Grant Program applications in the Vina, Wyandotte Creek, and Butte Subbasins. A consultant will be retained to aide scoping these projects out with more detail. The first step is to identify which projects should be considered for funding at this time and therefore are worth dedicating time and money to moving forward. Or in contrast, which of the

projects should not be pursued at this time, and therefore will simply remain on the GSP list of projects. They could be more fully developed at a later date when funding or circumstances warrant it.

### Upcoming WAC Discussion and Recommendations

At the upcoming Wyandotte Creek Advisory Committee meeting on September 1, the WAC will discuss the projects and the grant with the goal of providing a recommendation to the GSA Board on which projects to more fully develop. This memo and attached table are provided to the WAC members to provide background in preparation for the discussion. The question will be, “For each project, should this project be considered for funding and implementation at this time and therefore a more detailed scope/budget/schedule should be developed for future discussion and consideration by the public/WAC/GSA Board?”

To support the discussion, staff has prepared the attached table, **Summary of Wyandotte Creek GSP Implementation Activities** (Attachment A), which shows a comprehensive list of projects, management actions, and implementation activities discussed in the GSP in the Projects and Management Actions (PMA) and Implementation Chapters (see Attachment B). The rows that are highlighted in gray are either projects or activities that are related to SGMA compliance, are “planned” projects, or are activities the Implementation Chapter indicates the GSAs will do (i.e. filling data gaps, inter-basin coordination). This includes rows 1-12. Rows 13-28 are projects/activities that may be considered for the SGM Implementation funding opportunity and will be the focus of the WAC’s upcoming discussion. The second table lists project/activities that are not eligible nor applicable to the current funding opportunity.

### Attachments

- A. Table- Summary of Wyandotte Creek GSP Implementation Activities
- B. GSP PMA and Implementation Chapters

## Summary of Wyandotte Creek GSP Implementation Activities

version: August 19, 2022

Row #	Project/Activity	Estimated Cost	Category	Implementing Agency	Staff Recommendation	Notes
1	Monitoring- Groundwater Levels	\$15,000/yr	Monitoring	Butte County	Include	
2	Monitoring- Water Quality	\$6,000/yr	Monitoring	Butte County	Include	
3	Data Management System (Section 6.4)	\$5,000/yr	Data Analysis	Butte County	Include	
4	Update Data Management System	\$200,000	Data Analysis	Butte County	Include	
5	Review of Groundwater Data	\$5,000/yr	Data Analysis	Butte County	Include	Incorporate into larger project
6	Annual Report	30,000/yr	Reporting and Evaluation	Wyandotte Creek GSA	Include	
7	5-year Evaluation Report	\$100,000	Reporting and Evaluation	Wyandotte Creek GSA	Include	
8	GSP Updates and Response to DWR Comments	TBD	Implementation Activity	Wyandotte Creek GSA	Include	
9	6.7** Interbasin Coordination	TBD	Implementation Activity	Wyandotte Creek GSA/Butte County	Include	Could include GSP Evaluation as described in GSP and regional coordination on data gap related to Undesirable Result: Stream Depletion
10	5.4.2 Update Butte Basin Groundwater Model	\$25,000-\$75,000	Data Collection	Butte County	Include	Could incorporate into larger project
11	5.4.3 Community Monitoring Program	TBD	Data Collection	Wyandotte Creek GSA	Include	Address SMC data gap
12	5.4.4 Interconnected Surface Water/Associated Impacts on Groundwater Dependent Ecosystems	\$100,000-\$200,000	Data Collection	Wyandotte Creek GSA/Butte County	Include	Address SMC data gap
13	5.2.4.2 Agricultural Irrigation Efficiency	TBD	Project (Planned)	Wyandotte Creek GSA	Discuss	
14	5.2.4.3 Flood MAR	TBD	Project (Planned)	Wyandotte Creek GSA	Discuss	
15	5.2.4.5 Streamflow Augmentation	\$50-100 per acre-foot	Project (Planned)	Wyandotte Creek GSA	Discuss	Feasibility Study
16	5.2.5.2. Agricultural Surface Water Supplies	TBD	Project (Potential)	Wyandotte Creek GSA	Discuss	
17	5.3.2 Domestic Well Mitigation	TBD	Management Action	Wyandotte Creek GSA	Discuss	
18	5.3.3 Well Permitting Ordinance	TBD	Management Action	Butte County	Discuss	
19	5.3.5 Expansion of Water Purveyor's Service Area	TBD	Management Action	TBD	Discuss	
20	5.2.5.4 Fuel Management for Watershed Health	TBD	Project (Potential)	Wyandotte Creek GSA	Discuss	
21	5.2.5.5 Removal of Invasive Species	TBD	Project (Potential)	Wyandotte Creek GSA	Discuss	
22	5.4.1 County Contour Mapping	\$15,000-\$40,000	Data Collection	Wyandotte Creek GSA	Discuss	Could incorporate into larger project
23	5.2.5.3 Well Upgrades	TBD	Project (Potential)	TWSD	Discuss	Eligible?
24	5.2.4.6 TWSD Water Treatment Plant Capacity Upgrade	\$1.5M-\$3M	Project (Planned)	TWSD	Discuss	Currently underway.
25	5.2.4.7 Water Loss Monitoring	\$800,000	Project (Planned)	TBD	Discuss	Eligible?
26	5.2.5.1 Intra-Basin Water Transfer	TBD	Project (Potential)	TWSD (?) or Wyandotte Creek GSA	Discuss	Feasibility Study?
27	5.2.4.4 Oroville Wildlife Area Robinson's Riffle Project	\$1.7 million	Project (Planned)	Sutter Butte Flood Control Agency	Discuss	
28	5.2.4.8 Palermo Clean Water Consolidation Project	\$12.4 million	Project (Planned)	Butte County	Discuss	

### Not Considered for SGM Grant Application

Row #	Project/Activity	Cost	Category	Implementing Agency	Reason/Notes
1	5.2.4.1 Residential Water Conservation	TBD	Project (Planned)	Wyandotte Creek GSA, municipal water	Ineligible
2	5.2.6.1 Recharge Well (Injection Well)	TBD	Project (Conceptual)	TWSD	Longer-term/Conceptual Project
3	5.2.6.2 Extend Orchard Replacement	TBD	Project (Conceptual)	Wyandotte Creek GSA	Longer-term/Conceptual Project
4	5.3.4 Landscape Ordinance	TBD	Management Action	Butte County	Funding not needed at this time.
5	5.3.1 General Plan Updates	NA	Management Action	Butte County	Funds not needed at this time

Gray rows indicate projects/activities required for SGMA compliance or consistent with planned activities as described in the GSP

\*\* Refers to section number in the GSP where project is described

GSA- Groundwater Sustainability Agency

TWSD- Thermalito Water and Sewer District

TBD- To be Determined

## 5. PROJECT AND MANAGEMENT ACTIONS

This section includes relevant information about projects and management actions to satisfy CCR Title 23 § 354.42 and 354.44. The projects and management actions described in this section will help achieve the Wyandotte Creek Subbasin’s sustainability goal.

### 5.1 Projects, Management Actions, and Adaptive Management Strategies

The sustainability goal of the Wyandotte Creek Subbasin is to maintain a sufficient groundwater supply and quality that can be used by rural areas, communities, and agricultural users. Therefore, the overall approach will focus on investigating additional water sources to supplement groundwater and implementing various conservation programs. The projects described below were selected with this approach in mind.

### 5.2 Projects

#### 5.2.1 Project Identification

Projects were identified through an outreach effort involving the WAC and the Wyandotte Creek GSA. The process included soliciting input from governmental agencies, water purveyors, local organizations, and local landowners. The GSA website allowed project proponents to input the available information on each project.

The majority of projects submitted were proposed by the Wyandotte Creek GSA. Some of the projects also include other proponents, such as the TWSD and SFWPA. The list of proponents and other potential entities involved in the projects is included in Tables 5-1, 5-2, and 5-3 below.

The provided project information was compiled into an initial draft list with similar and overlapping projects combined as appropriate. The draft list was presented to the WAC and to the GSA Boards. The projects were evaluated based on the following priorities:

- Project addresses one or more of the Undesirable Results
- Project is implementable with respect to technical complexity, regulatory complexity, institutional consideration, and public acceptance
- Project is implementable within the SGMA timeframe
- Project benefits Underrepresented Communities (URCs)
- Project is in an area where water quality is suitable for use

#### 5.2.2 Project Implementation

Projects will be implemented through the individual project proponent(s) with the Wyandotte Creek GSA providing oversight. The GSA oversight may vary from acknowledging the implementation of the project to actively participating in the design and construction of the project or being the project proponent for some projects. The GSA will track the estimated effect on the water budget from projects annually.

### 5.2.3 List of Projects

Several projects to achieve the Wyandotte Creek Subbasin’s sustainability goal were identified. The initial set of projects was reviewed by the WAC. A final list of 15 possible projects is included in this GSP and they are categorized into four project types: direct recharge, in-lieu recharge, intra-basin water transfers, and demand conservation. Projects are further classified into three categories based on project status: Planned, Potential, and Longer-term or Conceptual, as defined below.

- Planned Projects – Projects in this category will move forward to help achieve the subbasin’s sustainability before 2042.
- Potential Projects – Projects in this category are currently in the planning stages and may move forward if funding becomes available. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects.
- Longer-term or Conceptual Projects – Projects in this category are in the early conceptual planning stages and will require significant additional work to move forward. Longer term/Conceptual Projects represent potential future projects that could conceptually provide a benefit to the Wyandotte Creek Subbasin in the future, but that would need to be further developed.

This subsection of the GSP satisfies the requirements of CCR Title 23 § 354.44. Consistent with SGMA requirements, the project descriptions contain information regarding:

- The MO benefitted by the project
- Permitting and regulatory processes
- Timetable for initiation and completion
- Expected benefits
- How the project will be accomplished
- Legal authority
- Estimated costs and plans to meet costs
- Implementation circumstances
- Public noticing

Tables 5-1, 5-2, and 5-3 provide a summary of the 15 projects. Full descriptions are included below.



**Table 5-1: List of Planned Projects**

Project Name	Project Type	Project Proponent(s)/ Potential Participating Entities	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (Acre-Feet/Year)
5.2.4.1 Residential Water Conservation	Conservation	Wyandotte Creek GSA, municipal water providers	Groundwater Levels, Groundwater Storage	Planning Stage	2022-2025	To be decided (TBD)	N/A	100 – 200
5.2.4.2 Agricultural Irrigation Efficiency	Conservation	Wyandotte Creek GSA, Vina GSA, Agricultural Groundwater Users of Butte County, Butte County Farm Bureau	Groundwater Levels, Groundwater Storage	Planning Stage	2024-2030	TBD	N/A	4,000
5.2.4.3 Flood MAR	Direct Recharge, In-Lieu Recharge	Wyandotte Creek GSA	Groundwater Levels	Planning Stage	2022-2032	TBD	SWRCB Water Right Permit, California Environmental Quality Act (CEQA)	TBD
5.2.4.4 Oroville Wildlife Area Robinson’s Riffle Project	In-Lieu Recharge	Sutter Butte Flood Control Agency, Golden State Salmon Association	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence	Planning Stage	TBD; Sutter Butte Flood Control Agency (SBFCA) is currently seeking funding	\$1.7 million (planning, design, environmental, permitting)	CEQA/National Environmental Policy Act (NEPA), United States Army Corps of Engineers (USACE) 408, USACE 404, CDFW ITP, CDFW 1600 LSAA, State Lands Commission	TBD

Project Name	Project Type	Project Proponent(s)/ Potential Participating Entities	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (Acre-Feet/Year)
5.2.4.5 Streamflow Augmentation	Direct Recharge, In-Lieu Recharge	Wyandotte Creek GSA, PG&E, surface water rights holders	Groundwater Levels, Surface Water Depletion	Planning Stage	2022-2025	\$50-100 per acre-foot	Lease, CVRWQCB 401, CVFPB Encroachment Permit, DWR Encroachment Permit	1,000-5,000
5.2.4.6 TWSD Water Treatment Plant Capacity Upgrade	Conservation	TWSD, DWR, Division of Drinking Water	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence	Planning Stage	6-12 months	\$1.5 million-\$3 million	SWRCB Water Right Permit, CEQA	500+
5.2.4.7 Water Loss Monitoring	Conservation	Wyandotte Creek GSA /SFWPA, Butte County	Surface Water Depletion	Planning Stage	2025	\$800,000	TBD	Unknown
5.2.4.8 Palermo Clean Water Consolidation Project	In-Lieu Recharge	Butte County Department Water and Resource Conservation, SFWPA, Palermo Community Council	Groundwater Levels, Groundwater Storage	Planning Stage	Project design and evaluation of funding sources underway, implementation could begin in 2022	\$12.4 million	TBD	TBD

**Table 5-2: List of Potential Projects**

Project Name	Project Type	Project Proponent/ Potential Participating Entities	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (AFY)
5.2.5.1 Intra-Basin Water Transfer	Intra-basin water transfer	TWSD, Butte County, DWR, agricultural users	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence	Planning Stage	6-12 months	TBD	DWR, Butte County	3,000-5,000
5.2.5.2. Agricultural Surface Water Supplies	Intra-Basin Water Transfer	Wyandotte Creek GSA, Agricultural Groundwater Users of Butte County, Farm Bureau	Groundwater Levels	Planning Stage	2025-2032	TBD	SWRCB Water Right Permit, CEQA, others TBD	2,000-3,000
5.2.5.3 Well Upgrades	Conservation	TWSD, DWR, Butte County, Wyandotte Creek GSA	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence	Planning Stage	6-12 months	TBD	TBD	TBD
5.2.5.4 Fuel Management for Watershed Health	Conservation	Wyandotte Creek GSA, Butte County Fire Safe Council, Butte County Resource Conservation District, NRCS	Groundwater Levels, Groundwater Storage, Water Quality, Surface Water Depletion	Planning Stage	2022-2042	TBD	CEQA	TBD
5.2.5.5 Removal of Invasive Species	Conservation	Wyandotte Creek GSA; other local, state, federal organizations and agencies	Groundwater Levels	Planning Stage	2022-2025	TBD	CEQA and/or NEPA (depending on project location and impact)	TBD

**Table 5-3: List of Conceptual Projects**

Project Name	Project Type	Project Proponent/ Potential Participating Entities	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (AFY)
5.2.6.1 Recharge Well (Injection Well)	Direct Recharge	TW/SD, DWR, Butte County, Wyandotte Creek GSA	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence	Planning Stage	12-24 months	TBD	TBD	TBD
5.2.6.2 Extend Orchard Replacement	Conservation	Wyandotte Creek GSA, Butte County	Groundwater Levels	Planning Stage	Dependent upon availability of financial incentives and willingness of growers to participate	TBD	N/A	TBD

## 5.2.4 Planned Projects

Projects categorized as Planned Projects are expected to move forward and be completed to achieve the Wyandotte Creek Subbasin’s sustainability goal by 2042. The estimated groundwater supply from these projects is expected to offset any potential overdraft.

### 5.2.4.1 Residential Water Conservation

Municipal water providers, who currently supply water to the City of Oroville and others throughout Butte County, are planning to implement water conservation practices in accordance with their 2020 UWMP. Some of these conservation projects include the installation of low flow fixtures, toilet replacements, urinal valve and bowl replacements, clothes washer replacements, residential conservation kits, smart controllers, and high efficiency irrigation nozzles. Other projects include water waste prevention ordinances, metering, conservation pricing, public education and outreach, programs to assess and manage distribution system real loss, water conservation program coordination and staffing support, and other demand management measures.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / Municipal water providers (including Cal Water Oroville, TWSD)
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	100 – 200 AFY

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage

**Project Status:** This project is currently in the planning stages.

**Required Permitting and Regulatory Process:** N/A

**Timetable for Initiation and Completion:** 2022-2025

**Expected Benefits and Evaluation:** As groundwater is the primary source of water for the region, these various conservation projects will reduce groundwater demand, allowing groundwater levels and overall storage to recover.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project conducted by municipal water service providers. No additional water source will be utilized for this project.

**Legal Authority:** The project would be conducted by municipal water service providers in the City of Oroville and other municipalities in the Wyandotte Creek Subbasin.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via grants and local entities.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** Increased water demand from planned developments in the City of Oroville and Butte County General Plans.

**Process for Determining Conditions Requiring the Project to have Occurred:** Not applicable; this is a Planned Project that is anticipated to move forward.

#### 5.2.4.2 *Agricultural Irrigation Efficiency*

A survey is currently being conducted in North and South Vina by the Vina GSA, Agricultural Groundwater Users of Butte County, and Butte County Farm Bureau in order to evaluate current irrigation methods and practices, identify opportunities and methods to improve irrigation efficiency, determine potential issues preventing the adoption of efficiency practices, and provide recommendations for increasing participation in these practices. The results of this survey are expected to be available in September 2022, with implementation of the project expected to be initiated between 2024 and 2030. Recommendations from the survey will be made available to the local agricultural community, and implementation of the practices will be voluntary. The Wyandotte Creek GSA along with participating partners will pursue grant funds to help implement these practices. It is estimated that the adoption of more efficient practices could reduce groundwater demand by up to 2%, which translates to a reduction in groundwater demand of up to 4,000 AFY.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA, Vina GSA, Agricultural Groundwater Users of Butte County, Butte County Farm Bureau
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	4,000 AFY

**Measurable Objective Expected to Benefit:** This project will address declining water levels and the declining volume of groundwater stored in the aquifer. The main objective of the project is to reduce groundwater demand by modifying irrigation practices.

**Project Status:** This project is in the planning stages.

**Required Permitting and Regulatory Process:** None

**Timetable for Initiation and Completion:** Project will be initiated in 2024

**Expected Benefits and Evaluation:** A survey that consolidates data on the adoption of irrigation methods and practices by agricultural groundwater users will identify where more efficient practices can be implemented. This can help focus efforts and finances on areas where a reduction in overall groundwater demand is needed and feasible.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project. No additional water source will be utilized for this project.

**Legal Authority:** The project would be under the authority of Vina GSA and potential future participating partners.

**Estimated Costs and Plans to Meet Costs:** To be determined, funding via Proposition 1, Proposition 68, USDA, Drought Resiliency Grants

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** The project will be initiated after the recommendations from the initial survey results are available.

**Process for Determining Conditions Requiring the Project to Occur:** As mentioned above, the survey is already underway and once analysis is complete, recommendations based off the results will be made available for voluntary implementation.

#### 5.2.4.3 Flood MAR

DWR originally developed the Flood MAR initiative to promote groundwater recharge programs. Under this project, the Wyandotte Creek GSA would adopt a similar approach to identify opportunities for recharge specific to the Wyandotte Creek Subbasin. Some projects already identified include the Wyandotte Creek, Wyman Ravine, Wilson Creek, North Honcut Creek, Feather River, and Ruddy Creek and will utilize water from the seasonal high flows from these creeks and streams for fields, recharge ponds, and recharge basins.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA
Project Type:	Direct Recharge, In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels

**Project Status:** This project is currently in the planning stages.

**Required Permitting and Regulatory Process:** California SWRCB Water Right Permit, CEQA

**Timetable for Initiation and Completion:** 2022-2032

**Expected Benefits and Evaluation:** By identifying specific locations and resources for recharge projects through the Flood MAR initiative, the Wyandotte Creek GSA can focus its efforts and direct water from those locations to recharge areas and increase groundwater levels in the region.

**How Project Will Be Accomplished/Evaluation of Water Source:** The Wyandotte Creek GSA will identify specific water sources for the recharge projects. Some sources already identified include Wyandotte Creek, Wyman Ravine, Wilson Creek, North Honcut Creek, Feather River, and Ruddy Creek.

**Legal Authority:** The project is being conducted by the Wyandotte Creek GSA. Additional evaluation of water rights may be necessary as projects move forward.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via Proposition 1 and Proposition 68.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** Availability of water sources.

**Process for Determining Conditions Requiring the Project to have Occurred:** This is a Planned Project that is anticipated to move forward.

**5.2.4.4 Oroville Wildlife Area Robinson’s Riffle Project**

The Robinson’s Riffle Project is a major restoration project for the Oroville Wildlife Area, a 12,000-acre area located in Butte County and managed by DWR and the CDFW. Under this project, the Feather River would undergo major grading improvements that would lower the floodplain surface to a more naturalized condition by excavating tailing piles, reconnect the overbank areas to the main channel, and create new side-channel and floodplain habitat. This work would increase the overall area of riverine habitat, thereby improving the flow and quality of the water, removing invasive species along the banks, and increasing the surface available for recharge into the aquifer during flood events. Additionally, increasing the overall streamflow in the river will benefit several local species. Necessary permits will be obtained by the SBFCA, in partnership with DWR and CDFW. SBFCA is in the process of conducting a series of workshops, during which they will share details of the project with potential stakeholders and resource agencies and obtain the necessary funding to move forward.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / SBFCA, Golden State Salmon Association
Project Type:	In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence

**Project Status:** This project is currently seeking stakeholders who will fund the work. Workshops are being held by SBFCA to present project details.

**Required Permitting and Regulatory Process:** CEQA/NEPA, USACE 408, USACE 404, CDFW Incidental Take Permit, CDFW 1600 Lake and Streambed Alteration, State Lands Commission Lease, CVRWQCB 401, Central Valley Flood Protection Board Encroachment Permit, DWR Encroachment Permit.

**Timetable for Initiation and Completion:** Once funding is obtained for the project, planning, design, and permitting will take approximately 18 months.

**Expected Benefits and Evaluation:** Expanding the overall area of riverine habitat near the Feather River will increase the surface available for water during flood events to recharge groundwater in the Wyandotte Creek Subbasin.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project will improve streamflow in the Feather River, thereby increasing the area available for water during flood events to recharge groundwater levels and storage in the aquifer.

**Legal Authority:** The project is being conducted by the SBFCA.



**Estimated Costs and Plans to Meet Costs:** \$1.7 million; funding via Proposition 1, Proposition 68, grants, DWR programs.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** Project implementation is dependent on funding and permitting issues.

**Process for Determining Conditions Requiring the Project to have Occurred:** This is a Planned Project that is anticipated to move forward.

#### 5.2.4.5 *Streamflow Augmentation*

Under this project, flood waters from water right holders in the region would be diverted to certain creeks or streams in the Wyandotte Creek Subbasin. This flood waters would be used for direct and in-lieu recharge to restore groundwater levels in the basin, as well as increase stream flows. The Wyandotte Creek GSA would head the project and initially conduct an investigation and feasibility study.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / PG&E, surface water right holders
Project Type:	Direct Recharge, In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	1,000-5,000 acre-feet/year

**Measurable Objective Expected to Benefit:** Groundwater Levels, Surface Water Depletion

**Project Status:** This project is currently in the planning stage.

**Required Permitting and Regulatory Process:** SWRCB Water Right Permit, CEQA

**Timetable for Initiation and Completion:** 2022-2025

**Expected Benefits and Evaluation:** Diverting flood waters will increase surface water flows and groundwater levels in the basin.

**How Project Will Be Accomplished/Evaluation of Water Source:** Wyandotte Creek GSA will evaluate which surface water sources will be available in a particular year to divert to creeks, streams, and recharge ponds.

**Legal Authority:** The project is being conducted by the Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** \$50-\$100 per acre-foot; funding via Proposition 1 (funds provided by the Stream Flow Enhancement Program through the California Wildlife Conservation Board), Proposition 68, Wyandotte Creek GSA fees, Resource Renewal Institute.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** None

**Process for Determining Conditions Requiring the Project to have Occurred:** This is a Planned Project that is anticipated to move forward.

#### 5.2.4.6 TWSD Water Treatment Plant Capacity Upgrade

The TWSD is planning to increase the capacity of the water treatment plant serving the city of Oroville and surrounding area. By treating a greater volume of water for the area, the amount of groundwater pumped for drinking water can decrease.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / TWSD, Division of Drinking Water, DWR
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	500+ acre-feet/year

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence

**Project Status:** This project is currently in the planning stage.

**Required Permitting and Regulatory Process:** Division of Drinking Water, DWR.

**Timetable for Initiation and Completion:** 6-12 months

**Expected Benefits and Evaluation:** Since groundwater is a significant contributor to drinking water in the city of Oroville and the Wyandotte Creek Subbasin, increasing the capacity of the treatment plant will reduce the impact of groundwater pumping.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project by TWSD. No additional water source will be utilized for this project.

**Legal Authority:** The project is being conducted by the TWSD and Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** \$1.5-\$3 million; funding sources TBD.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** Increased groundwater pumping for drinking water.

**Process for Determining Conditions Requiring the Project to have Occurred:** This is a Planned Project that is anticipated to move forward.

#### 5.2.4.7 Water Loss Monitoring

The water providers across the Wyandotte Creek subbasin recognize that water loss across their systems due to unpermitted use. SFWPA, which provides service to cities such as Oroville and Palermo, has recognized that fire hydrants, which are primarily used for fire suppression, are being used for other unmonitored purposes. The extended use of fire hydrants is negatively affecting the amount of available surface water in the service area. The hydrants do not have meters on them, making it difficult to monitor usage when used by those without portable

meters. Under this project, water providers would evaluate and implement procedures to track usage and water loss more accurately from their systems. This evaluation could include implementation of new practices to reduce unregulated use or even installation of meters on hydrants.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA/ SFWPA, Butte County
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	Unknown

**Measurable Objective Expected to Benefit:** Surface Water Depletion

**Project Status:** This project is currently in the planning stage.

**Required Permitting and Regulatory Process:** N/A

**Timetable for Initiation and Completion:** To be completed by 2025.

**Expected Benefits and Evaluation:** An improved monitoring system for unregulated water usage from fire hydrants will give a better indication as to the effect on surface water in the Wyandotte Creek Subbasin. This can prove useful for the Wyandotte Creek GSA when it comes to further water management decisions and strategies.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project to be implemented by the water providers. No additional water source will be utilized for this project.

**Legal Authority:** The project will be conducted by water providers and Wyandotte Creek GSA. The water systems to be evaluated are owned by the water providers.

**Estimated Costs and Plans to Meet Costs:** \$800,000; funding via state and federal water use efficiency grants.

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management. Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

**Trigger for Implementation and Termination:** The water providers have recognized that this unregulated water loss has been occurring for some time and are committed to proceeding with the evaluation once funding is secured.

**Process for Determining Conditions Requiring the Project to have Occurred:** This is a Planned Project that is anticipated to move forward.

#### 5.2.4.8 *Palermo Clean Water Consolidation Project*

The water quality in the 1 unincorporated community of Palermo is currently a public health concern for its nearly 2,000 residents. Most of the population obtain their potable water from individual water wells and use septic systems for wastewater treatment and disposal. The area's

predominant soil type prevents surface water from properly percolating and draining, causing frequent flooding and the surfacing of untreated wastewater effluent. This, in turn, leads to septic system failures, plumbing back-ups into homes, and possible cross-contamination of pathogens in untreated wastewater with drinking water sources in the aquifer. Under this project, the SFWPA would expand its service areas and water delivery capabilities to provide treated drinking water to Palermo residents.

<b>Project Summary</b>	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA, Butte County Department Water and Resource Conservation, SFWPA, Palermo Community Council
Project Type:	In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage

**Project Status:** This project is in the planning stages with 100% project design expected by mid-2022. Funding is being sought from multiple grant sources to fully fund the project.

**Required Permitting and Regulatory Process:** LAFCO and Butte County.

**Timetable for Initiation and Completion:** Project design and evaluation of funding sources underway, implementation could begin in 2022.

**Expected Benefits and Evaluation:** Expanding the SFWPA service areas in Palermo would provide more residents with clean and safe drinking water using a surface water source and will reduce dependence on groundwater pumping wells that may be contaminated. This would also allow groundwater levels in the region to recover. This project will improve the resilience of drinking water supplies to households in Palermo.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a supply side in-lieu recharge project conducted by the BCDWRC in partnership with SFWPA. Water will be supplied by surface water from SFWPA.

**Legal Authority:** The project would be under the authority of BCDWRC, SFWPA, and Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** \$12.4 million met through multiple grant sources

**Circumstances for Implementation:** This project is a Planned Project that is anticipated to move forward.

**Trigger for Implementation and Termination:** Dependence on individual groundwater pumping wells for drinking water and frequent issues such as flooding, plumbing problems, and possible cross contamination.

**Process for Determining Conditions Requiring the Project to have Occurred:** Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

## 5.2.5 Potential Projects

Projects categorized as Potential Projects are currently in the planning stages and may move forward if funding becomes available. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. The Potential Projects are presented in Table 5-2.

### 5.2.5.1 Intra-Basin Water Transfer

Under this project, surface water would be supplied to agricultural groundwater users in the Wyandotte Creek Subbasin outside of the subbasin to offset groundwater pumping by with available surface water

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / TWSD, Butte County, agricultural users
Project Type:	In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	3,000 – 5,000 AFY

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence

**Project Status:** This project is a potential project and the feasibility is still being evaluated.

**Required Permitting and Regulatory Process:** DWR, Butte County

**Timetable for Initiation and Completion:** 2025-2030

**Expected Benefits and Evaluation:** Intrabasin water transfers increase the surface water supply in the basin, offsetting groundwater pumping by agricultural or urban users and allowing groundwater levels and volume to recover.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is an in-lieu recharge project. The water would be supplied by surface water from entities such as TWSD, Butte County, or SFWPA.

**Legal Authority:** The project would be under the authority of TWSD.

**Estimated Costs and Plans to Meet Costs:** TBD

**Circumstances for Implementation:** This project is a Potential Project, meaning it is currently in the planning stages. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management.

**Trigger for Implementation and Termination:** Availability of water sources and negotiations with water suppliers.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

**5.2.5.2 Agricultural Surface Water Supplies**

In the 2018 “Evaluation of Restoration and Recharge Within Butte County Basins,” Butte County identified surface water sources that could be diverted to fields, recharge basins, and/or recharge ponds in both the Vina and Wyandotte Creek Subbasins. For Wyandotte Creek, the main source of surface water would come from Lake Oroville, while other sources are owned by water right holders in the Wyandotte Creek Subbasin and upper watershed. Under this project, surface water would be used in place of groundwater in agricultural settings to allow groundwater levels in the Wyandotte Creek Subbasin to recover. Agricultural users may need a dual irrigation system that allows them to use surface water and switch to groundwater when surface water is not available.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / Agricultural Groundwater Users of Butte County, Farm Bureau
Project Type:	Intra-Basin Water Transfer, In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	2,000 – 3,000 AFY

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage

**Project Status:** This project is a potential project and the feasibility is still being evaluated.

**Required Permitting and Regulatory Process:** SWRCB Water Right Permit, CEQA, other TBD.

**Timetable for Initiation and Completion:** 2025-2032

**Expected Benefits and Evaluation:** By using available surface water in place of groundwater for agricultural purposes, groundwater levels in the region will be allowed to recover.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project will transfer and utilize available surface water in the region owned by water rights holders. Most of the surface water will come from the Feather River watershed.

**Legal Authority:** The project would be under the authority of Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** TBD; likely funding via Proposition 1 and Proposition 68.

**Circumstances for Implementation:** This project is a Potential Project, meaning it is currently in the planning stages. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management.

**Trigger for Implementation and Termination:** Based on discussions with landowners.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

**5.2.5.3 Well Upgrades**

Under this project, TWSD would install variable frequency drives and telemetry on its groundwater wells to better utilize groundwater and to document groundwater pumping.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA, TWSD, Butte County, DWR
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence

**Project Status:** This project is a potential project and the feasibility is still being evaluated.

**Required Permitting and Regulatory Process:** TBD

**Timetable for Initiation and Completion:** 2025-2030

**Expected Benefits and Evaluation:** By automating more of its groundwater wells, TWSD will be able to better monitor the amount of groundwater pumped, increasing the efficiency of pumping and allowing groundwater to stabilize in the Wyandotte Creek Subbasin.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project conducted by TWSD. No additional water source will be utilized for this project.

**Legal Authority:** The project would be under the authority of TWSD and Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via Wyandotte Creek GSA, DWR, Butte County.

**Circumstances for Implementation:** This project is a Potential Project, meaning it is currently in the planning stages. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management.

**Trigger for Implementation and Termination:** Availability of funds.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

#### 5.2.5.4 Fuel Management for Watershed Health

Numerous fuel management projects would be implemented to protect various water sources in the Wyandotte Creek Subbasin and in the upper watershed of the Wyandotte Creek Subbasin and to better maintain overall watershed health. The implementation of fuel management projects in the Wyandotte Creek Subbasin will help with the protection of water bodies, maintaining quality and ensuring that those bodies can continue to be water sources for communities and agriculture.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA, Butte County Fire Safe Council, Butte County Resource Conservation District, NRCS
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Surface Water Depletion

**Project Status:** This project is a potential project and the feasibility is still being evaluated.

**Required Permitting and Regulatory Process:** CEQA

**Timetable for Initiation and Completion:** 2022-2042

**Expected Benefits and Evaluation:** Fuels have the potential to contaminate water sources, affecting water quality and their use for communities and agriculture. Fuel management will help to maintain water quality.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project conducted by Wyandotte Creek GSA. No additional water source will be utilized for this project.

**Legal Authority:** The project would be under the authority of Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via CAL FIRE, Sierra Nevada Conservancy, California Fire Safe Council, other state/federal funding agencies.

**Circumstances for Implementation:** This project is a Potential Project, meaning it is currently in the planning stages. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management.

**Trigger for Implementation and Termination:** None.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.



### 5.2.5.5 *Removal of Invasive Species*

Invasive species are a threat to the Wyandotte Creek Subbasin’s ecosystem and water resources since they are known to consume water and hamper recharge. Under this project, invasive species and native grasses would be mapped to help track the effects these species have on water supplies and to help plan out future groundwater management actions. Following this initial mapping, management plans would be developed to establish groundwater management goals and propose actions towards the removal of invasive species. Appropriate funding mechanisms would be identified and secured to move the project forward.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA, local, state, and federal organizations and agencies
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels

**Project Status:** This project is a potential project and the feasibility is still being evaluated.

**Required Permitting and Regulatory Process:** CEQA and/or NEPA depending on project location and impact.

**Timetable for Initiation and Completion:** 2022-2025

**Expected Benefits and Evaluation:** The removal of invasive species would benefit the natural ecosystem and prevent them from negatively affecting the amount of available water and the ability for water to recharge.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project conducted by the Wyandotte Creek GSA. No additional water source will be utilized for this project.

**Legal Authority:** The project would be under the authority of Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via state and federal wildfire resiliency grants and other local, state, and federal organizations and agency programs.

**Circumstances for Implementation:** This project is a Potential Project, meaning it is currently in the planning stages. Potential Projects represent a “menu of options” for the Wyandotte Creek Subbasin to achieve long-term sustainability and offset the remaining imbalance above and beyond implementation of the Planned Projects. As scenarios change, the Potential Projects can come online to bring additional resources for adaptive management.

**Trigger for Implementation and Termination:** Increase in the number of invasive species in the region and their negative effect on water supply.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Potential Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

## 5.2.6 Longer-term or Conceptual Projects

Projects categorized as Longer-term or Conceptual Projects are in the early conceptual stages and would require significant additional work to move forward. Longer-term/Conceptual Projects represent potential future projects that could conceptually provide a benefit to the Wyandotte Creek Subbasin in the future, but that would need to be further developed.

### 5.2.6.1 Recharge Well (Injection Well)

Under this project, the TWSD treatment plant would install an injection well that would inject raw and backwash water from its operations into the basin.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA /TWSD, Butte County, DWR
Project Type:	Direct Recharge
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence

**Project Status:** This project is conceptual planning stages.

**Required Permitting and Regulatory Process:** TBD

**Timetable for Initiation and Completion:** 12-24 months

**Expected Benefits and Evaluation:** This project would use raw and backwash water, which would be discharged from the treatment plant anyway, for direct recharge into the aquifer, thereby increasing groundwater levels and volume in the Wyandotte Creek Subbasin.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a direct recharge project. The water would be supplied from the raw and backwash water from operations at the TWSD treatment plant.

**Legal Authority:** The project would be under the authority of TWSD and Wyandotte Creek GSA.

**Estimated Costs and Plans to Meet Costs:** TBD; funding via DWR, Butte County, Wyandotte Creek GSA.

**Circumstances for Implementation:** This project is a Longer-term/Conceptual Project, meaning it is in the early conceptual planning stages and would require significant additional work to move forward. Longer-term/Conceptual Projects represent potential future projects that could conceptually provide a benefit to the Wyandotte Creek Subbasin in the future. As scenarios change, Longer-term/Conceptual Projects can come online to bring additional resources for adaptive management. This project could be implemented when agreements are reached with all federal and state regulatory agencies and when funding is available.

**Trigger for Implementation and Termination:** None.

**Process for Determining Conditions Requiring the Project to have Occurred:**

Implementation of Longer-term/Conceptual Projects will be based on long-term management or changing needs of the GSA or Wyandotte Creek Subbasin.

**5.2.6.2 Extend Orchard Replacement**

Under this project, various funding sources would incentivize local growers to increase the duration of their current fallowing practice between orchard removal and replanting by one growing season. The extra time would allow the soil to fallow and decrease the overall demand on groundwater and other water sources. Additionally, this program may also reduce the need for soil treatments such as fumigation and expand recycling options for the previous orchard. This project has the potential to fallow many acres although it is not determined at this time. As envisioned, this project would be dependent on the availability of financial incentives and willingness of landowners to participate. Participation in the program would be voluntary.

Project Summary	
Project Proponent / Other Potential Participating Entities:	Wyandotte Creek GSA / Butte County
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD

**Measurable Objective Expected to Benefit:** Groundwater Levels

**Project Status:** This project is still in the early conceptual planning stages.

**Required Permitting and Regulatory Process:** None

**Timetable for Initiation and Completion:** To be determined. The timetable would be dependent on the availability of financial incentives and willingness of farmers to participate.

**Expected Benefits and Evaluation:** By increasing the time between orchard removal and replanting, the soil may be allowed to fallow, restoring its fertility, and decreasing its water demand. This would decrease the overall use of groundwater in the Subbasin.

**How Project Will Be Accomplished/Evaluation of Water Source:** This project is a demand-side conservation project. No additional water source will be utilized for this project.

**Legal Authority:** The project would be under the Wyandotte Creek GSA, local landowners and other entities To be determined.

**Estimated Costs and Plans to Meet Costs:** To be determined; funding via Proposition 1, Proposition 68, USDA, National Resource Conservation Service (NRCS)

**Circumstances for Implementation:** This project is a Conceptual project in the early conceptual planning stages and would require significant additional work to move forward.

**Trigger for Implementation and Termination:** None

**Process for Determining Conditions Requiring the Project to Occur:** The project proponents are in the process of determining the feasibility of this project including the possibility of securing the necessary finances to move forward.

### **5.2.7 Notification Process**

The GSA will continue to conduct public outreach and will be responsible for notification of the projects. Regular updates will be provided to the GSA Boards and presented on the website ([www.wyandotecreekgsa.com](http://www.wyandotecreekgsa.com)) as projects are implemented. Outreach is likely to be provided via public notices, meetings, website, social media, and email lists.

## **5.3 Management Actions**

In order to achieve sustainable groundwater management, management actions can be implemented to focus on reduction of groundwater demand. The management actions can include increased data collection, education and outreach, regulatory policies, incentive programs, and enforcement actions.

The following sections will present management action options that the GSA may consider during GSP implementation. The GSA will monitor, participate, and coordinate with respective agencies for each of the Management Actions that may be considered. The schedule to implement the management actions is likely to vary depending upon Wyandotte Creek Subbasin conditions and the expected benefits may also vary year to year.

### **5.3.1 General Plan Updates**

Under this management action, the Wyandotte Creek GSA would monitor, participate, and coordinate with the City of Oroville and Butte County, who are currently updating their General Plans, to make necessary amendments so that the plans recognize important components of the Wyandotte Creek Subbasin's GSP.

### **5.3.2 Domestic Well Mitigation**

In order to protect domestic water supplies in the region, the Wyandotte Creek GSA would conduct the following under this management action:

1. Establish a voluntary registry for domestic wells.
2. Compile domestic well logs, screen depths, and locations.
3. Improve and deepen domestic wells so that well screens are at or below the MTs established for the Wyandotte Creek Subbasin.
4. Provide emergency supplies, such as bottled drinking water or potable water for sanitation, to communities with dry domestic wells. Priority would be given to DACs who are dependent on groundwater.

Creating a registry of domestic wells in the region, with information on well location and screen depths, would help the GSA compile important data into a centralized location. This would allow the GSA to determine which wells need to be updated to the current standards and which may need to be deepened, as well as to help them prioritize certain communities for emergency response.

### **5.3.3 Well Permitting Ordinance**

According to current Butte County Code, wells are required to be screened below groundwater levels measured during the 1989 to 1994 drought. With water levels continuing to decline in the Wyandotte Creek Subbasin, several domestic wells are becoming dry. Wyandotte Creek GSA in coordination with Butte County would work to update the current well permitting ordinance to require all domestic wells in the Representative Monitoring Network area to be screened below the MT depths established for the Wyandotte Creek Subbasin.

### **5.3.4 Landscape Ordinance**

Wyandotte Creek GSA will coordinate with Butte County and the City of Oroville to update the landscape ordinance to encourage new residential, commercial, and industrial developments to use drought-resistant species and to limit the size of grass turf lawns. This ordinance would also promote xeriscaping and focus efforts and funds on reducing landscape irrigation and water use for swimming pools. The implementation of this ordinance would require a period of planning, public discussion, and code enforcement for each new building permit.

### **5.3.5 Expansion of Water Purveyors' Service Area**

Under this management action, water purveyors would expand their service areas and provide drinking water to residential areas that are currently using private domestic groundwater wells. Groundwater levels in the Wyandotte Creek Subbasin would be allowed to recover with the overall decrease in groundwater demand. This action would require approval from the Butte Local Agency Formation Commission and the California Public Utilities Commission.

## **5.4 Data Collection**

### **5.4.1 County Contour Mapping**

As part of the efforts to collect the information necessary to fill the information needs and data gaps identified in Section 3, this project proposes to expand the existing monitoring program to include Butte, Glen, Colusa, and Tehama counties and conduct these groundwater elevation surveys in the spring, summer, and fall. The monitoring program would gather data used to produce groundwater contours and estimates of lateral and vertical flow direction and volume. Producing this data for the four counties will help to identify interbasin flow patterns and influences on surface water flows and replenishment locations, thereby improving coordination between counties and water management decision-making.

Routine water table monitoring programs will track overall water table trends in the region and provide important, up-to-date data for making decisions on water management. Establishing these programs amongst the four counties will aid in the exchange of data and improve regional coordination on various water projects. The expanded water monitoring programs will be established by the Wyandotte Creek GSA, with assistance from the four counties.

### **5.4.2 Project: Update the Butte Basin Groundwater Model**

The existing BBGM covers the Vina, Butte, and Wyandotte Creek Subbasins. This project will help fill the identified information needs and data gaps and will consist of 1) updating the BBGM

with newly acquired data; and 2) using the updated version of the model to run simulations and better establish the basin's SMC as needed.

Some of the new data to be added is the AEM data and data on the different hydraulic conductivities of each layer of the aquifer. The AEM data will be used, among other things, to adjust the various surfaces in the model to better present the aquifer's hydrogeologic layers.

Once the model has been updated with the new data, it will be better suited for running simulations of different water or land management scenarios as well as predictions for climate and precipitation fluctuations. Lateral and vertical connectivity between aquifer layers and connections to surface water features will be more accurate and help identify areas of the basin where groundwater recharge may be needed. Overall, this will help shape management actions by focusing their efforts on those particular areas. Ongoing updates to the model will emphasize the importance of accurate and up-to-date data and help continue monitoring efforts such as measuring water levels and stream flows.

An updated groundwater model is vital for running accurate simulations that may be used to make important decisions regarding groundwater allocation, pumping, recharge, and other activities. The model should contain the most up-to-date data to represent the basin realistically and accurately. Two updates to the model are current planned during SGMA implementation.

#### **5.4.3 Community Monitoring Program**

As discussed in Section 3.3, the MT for groundwater levels is based on the depths of domestic wells. The dataset used for this assessment is limited and likely includes wells no longer in use or poorly maintained. To resolve this data gap, the GSAs will conduct surveys of domestic wells within the Wyandotte Creek Subbasin to assess if the wells are still active and well construction details. As domestic well construction information may be limited, selected wells may be video logged to obtain additional information.

The GSAs will also maintain a record of verifiable domestic wells that go dry during the implementation period that will include depth of these wells, screen intervals, and available maintenance records. These data will be used to modify the MT over the implementation period, as appropriate.

#### **5.4.4 Interconnected Surface Water/Associated Impacts on Groundwater Dependent Ecosystems**

As presented Section 4.10, the lack of sufficient data to analyze interaction of streams and pumping within the primary aquifer system. Additional wells and other monitoring networks will be installed, as appropriate, following the framework discussed in Section 3.8.

### **5.5 Adaptive Management Strategies**

The Wyandotte Creek GSA will be requesting annual reports from the project proponents to evaluate progress on implementation. If the projects are not progressing or if monitoring efforts demonstrate that those projects are not achieving their targets, the GSA will evaluate the need for additional or modified projects and to begin implementation of management actions.

## 5.6 Potential Available Funding Mechanisms

As listed above in the individual project descriptions, several funding mechanisms have been identified to help with the planning and implementation of the GSP projects. The following is an abbreviated list of some of the funding mechanisms proposed:

Project Type	Funding Type	Program	Dates
IRWM (projects included in an adopted IRWMP)	Implementation grant	Proposition 1, Water Quality, Supply, and Infrastructure Improvement Act of 2014	Round 2 solicitation expected in late 2021
Recharge Projects	Planning and construction grants	Proposition 68, California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018	Round 2 solicitation to be released early 2022
Wastewater Treatment for URC Projects	Planning and construction grants	Small Community Grant Fund	Applications accepted continuously
Public Water Systems Improvement	Planning and construction grants	Drinking water grants	Applications accepted continuously
Land Conservation	USDA Farm Service Agency	Conservation Reserve Program	Applications accepted continuously

## 6. PLAN IMPLEMENTATION

The SGMA requires the GSA to partner with groundwater users to develop and implement GSPs to achieve groundwater sustainability. SGMA requires the Wyandotte Creek Subbasin to be sustainable by 2042. The GSP includes provisions to evaluate current conditions in the Wyandotte Creek Subbasin (Section 2), establish the SMC (Section 3), gather and analyze groundwater data (Section 4), and report findings. The provisions in the GSP will be evaluated every 5 years and updated as necessary. The Wyandotte Creek Subbasin GSA is required to submit the GSP to DWR by January 31, 2022. DWR will evaluate the GSP within 24 months of submittal. Upon submittal of this GSP to DWR, GSP implementation will begin in the Wyandotte Creek Subbasin. The GSA will continue their efforts with public engagement and to secure funding to monitor and manage groundwater resources. This section presents the manner in which the GSA will execute the GSP consistent with the requirements in CCR Title 23 § 354.6(e).

The GSP includes provisions for:

- Gathering data at RMS locations
- Evaluation of SMC
- Report of findings and analysis
- PMAs

Each of these will require funding and schedule coordination to help achieve Wyandotte Creek Subbasin sustainability goals. The following sections describe the funding mechanisms and timetable for the GSP implementation.

### 6.1 Estimate of Groundwater Sustainability Plan Implementation Costs

Where feasible, the GSA will use existing funding and/or programs for use in the GSP implementation. The GSA, member agencies, and water purveyors will coordinate to implement the actions outlined in this GSP. The GSA will fund the implementation of the GSP where other sources are not available. The cost of implementation of the GSP by activity is presented below.

#### 6.1.1 Administrative Costs

These include the cost of annually operating the GSA, including staff expenses, audit, outreach, legal and other administrative costs. This does not include agency specific project implementation costs. Costs are estimated to be in the range of approximately \$100,000 to \$300,000 annually.

**Table 6-1: Estimated Administrative Costs**

GSP Implementation	Estimated Annual Costs
Public Outreach	\$15,000
Staff	\$100,00
Legal	\$20,000
Total Estimate	\$135,000



### 6.1.2 Monitoring

Monitoring for compliance with SGMA regulations will include biannual collection of groundwater levels at 9 RMS locations and annual collection of groundwater quality at 8 RMS locations. Monitoring activity costs will include labor (field data collection, surveying, laboratory analysis, project management) and equipment (vehicles, meters, pumps, field tools/supplies).

**Table 6-2: Monitoring Activities and Estimated Cost**

Monitoring Activity	Frequency	Estimated Annual Cost
Groundwater Levels	Biannual, 2 events	\$15,000
Groundwater Quality	Annual, 1 event	\$6,000

Some RMS locations include wells that are monitored and funded under existing programs.

### 6.1.3 Data Analysis

The data gathered from the monitoring will be analyzed to assess trends for determination of undesirable results. Analysis of the data may lead to modifications in the RMS network, the HCM, and the priority of PMAs. Data gaps that arise from analysis may require installation of new RMS locations.

**Table 6-3: Data Analysis Activities and Estimated Cost**

Data Analysis Activity	Frequency	Estimated Annual Cost
DMS	Annual	\$5,000
Review of Groundwater Data	Annual	\$5,000

### 6.1.4 Reporting and Evaluation

Annual reports are required after GSP adoption to provide updates to general GSP information, basin conditions, and plan implementation progress. Section 6.5 discusses the annual reporting plan in more detail. GSA are required to conduct an evaluation of the GSP and prepare a report every 5 years or whenever the GSP is amended. Section 6.6 discusses the evaluation report in more detail.

**Table 6-4: Reporting and Evaluation Activities and Estimated Cost**

Reporting Activity	Frequency	Estimated Cost
Annual Report	Annual	\$30,000
5-year Evaluation Report	5 Years	\$100,000

### 6.1.5 Data Collection

A discussion of the data needed to improve groundwater management and address data gaps is presented in Section 5 and the estimated costs are presented below.

**Table 6-5: Estimated Costs for Implementing Data Improvements to address Data Gaps**

Data Collection	Estimated Costs
Contour Mapping	\$15,000 - \$40,000
Interconnected Surface Water/GDEs	\$100,000 - \$200,000
Butte Basin Model Update 1	\$25,000 - \$75,000
Butte Basin Model Update 2	\$25,000 - \$75,000

### 6.1.6 Project and Management Actions

The PMAs and anticipated costs are presented in Section 5. The PMAs with a planned initiation date in or before 2027 are presented below.

**Table 6-6: Estimated Project Costs**

Project Name	Capital Costs	Expected Groundwater Demand Reduction (AFY)
Residential Water Conservation	TBD	100 - 200
Agricultural Irrigation Efficiency	TBD	Up to 4,000
Flood MAR	TBD	1000 - 3000
Oroville Wildlife Area Robinson’s Riffle Project	\$1.7M	TBD
Streamflow Augmentation	TBD	1,000 – 5,000
TWSD Water Treatment Plant Capacity Upgrade	\$1.5 - \$3M	500+
Water Loss Monitoring	\$800,000	TBD
Palermo Clean Water Improvement Project	TBD	TBD
Intra-Basin Water Transfer	TBD	3,000 – 5,000
Agricultural Surface Water Supplies		2,000 – 3,000
Well Upgrades	TBD	TBD
Fuel Management for Watershed Health	TBD	TBD
Removal of Invasive Species	TBD	TBD

## 6.2 Identify Funding Alternatives

The GSA will seek to capitalize on existing funding and programs that overlap with GSP requirements. For example, Butte County, DWR and other entities currently fund groundwater data collection programs at locations within the Wyandotte Creek Subbasin. The GSAs will ensure that the existing programs meet the technical requirements of the monitoring and reporting as outlined in the GSP.

In cases where no funding or programs are established, the GSA will be responsible for securing funding for the GSP implementation. The GSA will coordinate funding with their respective constituent members within the Wyandotte Creek Subbasin. GSAs will fund the GSP through a cost-sharing collaboration to be determined after adoption of GSP.

Funding is anticipated to be met from one or a combination of the following sources: direct contributions from the GSA constituent members, State and Federal grant funding, and taxes or assessments levied on landowners and groundwater users in accordance with local and State law.

The GSAs are evaluating a variety of funding mechanisms including Proposition 218 or Proposition 26 to support ongoing operational costs and to fund agency operations. These costs include retaining consulting firms and legal counsel to provide oversight and assist with SGMA compliance. Expenses consist of administrative support, GSP development, and GSP implementation.

### 6.3 Schedule for Implementation

The monitoring, data analysis and reporting will begin upon submittal of the GSP by DWR. The PMAs listed in Table 6-4 are scheduled to be completed by 2027 or earlier. Each of the PMAs will be completed by priority as funding and resources become available.

### 6.4 Data Management Systems

In development of this GSP, the GSA developed a groundwater model that was calibrated to estimate future scenarios. The DMS plans to build on existing data inputs in the groundwater model and develop a more formalized approach to collecting and capturing data. As stated in Section 4, Monitoring Network, future data will be gathered to develop annual reports as well as provide necessary information for future and ongoing update to the groundwater models at five-year intervals upon GSP implementation. The DMS that will be used is a geographical relational database that will include information on water levels, land elevation measurements, and water quality testing. The DMS will allow the GSA to store the necessary information for annual reporting.

The DMS will be on local servers and data will be transmitted annually to form a single repository for data analysis for the Wyandotte Creek Subbasin's groundwater, as well as to allow for preparation of annual reports. GSA representatives have access to data and will be able to ask for a copy of the regional DMS. The DMS currently includes the necessary elements required by the regulations, including:

- Well location and construction information for the representative monitoring points (where available)
- Water level readings and hydrographs including water year type
- Land based measurements
- Water quality testing results
- Estimate of groundwater storage change, including map and tables of estimation
- Graph with Water Year type, Groundwater Use, Annual Cumulative Storage Change

Reporting generated from data from the GSAs will include but is not limited to:

- Seasonal groundwater elevation contours

- Estimated groundwater extraction by category
- Total water uses by source

Additional items may be added to the DMS in the future as required. Data will be entered into the DMS by each GSA. The majority of the data will then be aggregated to the entity that is responsible for the regional DMS and summarized for reporting to DWR. Groundwater contours will be prepared outside of the DMS because of the need to evaluate the integrity of the data collected and generate a static contour set that has been reviewed and will not change once approved. Groundwater storage calculations will be calculated in accordance with the method described in Section 2, outside of the DMS. Results are uploaded to the DMS for annual reporting and trend monitoring. Since most of the pumping in the Wyandotte Creek Subbasin is not currently measured, the groundwater pumping estimates are also calculated outside of the DMS using the methods developed by GSA and uploaded to the DMS for annual reporting and trend analysis. The GSA may choose to have their own separate system for additional analysis.

The one-time cost of expanding the existing data systems is estimated between \$50,000 to \$200,000 as the system is still being evaluated. The Board has indicated a desire to make the data transparent and available to the public while respecting the privacy of individual landowners.

## 6.5 Annual Reporting

Annual reports will be submitted by April 1 for the prior year's activities. The report will include a general update in the form of an executive summary with accompanying map of the Wyandotte Creek Subbasin. The body of the report will include a detailed discussion and graphical representation of the following:

- Groundwater elevation data, including contour maps at seasonal high and low conditions and hydrographs using water year type and historical data from at least 2015.
- Groundwater extraction data divided into volume by water usage sectors with accompanying map, including a description of the methodology and accuracy of the groundwater extraction estimation.
- Surface water volume used or available for use for groundwater recharge or in-lieu use, including a description of the water sources.
- Total water volume use divided into water use sector and water source type, including a description of the methodology and accuracy of the water use estimation.
- Changes in groundwater storage with accompanying map, including a graph with water year type, groundwater use, annual change in groundwater storage, and cumulative change in groundwater storage using historical data from at least 2015.

The annual report will also include a discussion and update on the plan implementation including the status of IM and the execution of PMAs.

## 6.6 Evaluation Report

The GSAs will evaluate the GSP and provide an evaluation report every 5 years or whenever the GSP is amended for submittal to DWR.

The assessment will include a detailed discussion of the following:

- Significant new information and whether the information warrants changes to the basin setting, MOs, MTs, and SIs, including completed or planned GSP amendments.
- Current groundwater conditions relating to each MO, MT and IM.
- Implementation of any project and management actions and the resulting effects on groundwater conditions.
- Assessment of the basin setting, MAs, undesirable results, MOs and MTs.
- Evaluation of the basin setting and overdraft conditions to include changes in water use, along with overdraft mitigation measures (if applicable).
- Assessment of the monitoring network with analysis of data collected to date, including identification of data gaps and suggested improvements of the network.
- Program to address data gaps, including timing and incorporation of data into the GSP, with prioritization on the installation of new data collection sites and analysis of new data based on the needs of the basin.
- Relevant actions taken by the GSAs including a summary of regulations, ordinances, legal enforcement or action related to the implementation of the GSP and sustainability goals.

Summary of coordination by GSAs within the basin or within hydrogeologically connected basins and land use agencies.

## 6.7 Interbasin Coordination

Wyandotte Creek GSA intends to coordinate in the following ways with its neighboring subbasins and with subbasins in the Feather River Corridor (Wyandotte Creek, Butte, North Yuba, Sutter Subbasins):

### 1. Information Sharing

Wyandotte Creek Subbasin will work with GSA staff of Butte and North Yuba subbasins to identify lines of communication and methods for information sharing between subbasins and GSA Boards. This will continue throughout GSP implementation and may include:

1. Inform each other on changing conditions (i.e., surface water cutbacks, land use changes, policy changes that inform groundwater management)
2. Share annual reports and interim progress reports

3. Share data and technical information and work towards building shared data across and/or along basin boundaries (e.g., monitoring data, water budgets, modeling inputs and outputs, and GDEs)

## **2. Conduct Joint Analysis and Evaluation of GSPs**

Wyandotte Creek Subbasin intends to pursue grant funding and collaboratively work with subbasins in the Feather River Corridor group to:

1. Contract with a consultant to conduct this work
2. Evaluate and compare contents of GSPs with a focus on establishing a common understanding of basin conditions at boundaries
3. Identify significant differences, uncertainties, and potential issues of concern related to groundwater interaction at the boundaries
4. Engage in analysis and evaluation of SMC between GSPs to assess impacts and identify significant differences and possible impacts between subbasins that could potentially lead to undesirable results

## **3. Coordinate on mutually beneficial activities**

Wyandotte Creek GSA will work collaboratively with Feather River Corridor subbasins to identify items in our GSPs that are ripe for a coordinated project and pursuit of funding such as Projects and Management Actions, Data Gaps (new monitoring wells, stream gaging etc.)

1. Wyandotte Creek will pursue grant funding to support a consultant to conduct this work
2. Wyandotte Creek will work collaboratively with the Northern California Water Association (NCWA) and others in their efforts to pursue funding and support local and state agency activities to identify and fill regional data gaps

## **4. Coordinated Communication and Outreach**

Wyandotte Creek GSA staff will continue to participate in regional public engagement activities and efforts related to implementation of SGMA in the Northern Sacramento Valley. This may include:

1. Coordinate and collaborate on regional-scale public engagement and communication strategies that promote awareness on groundwater sustainability, enhance public trust, and maintain institutional knowledge
2. Maintain list of GSP/subbasin staff contacts and websites

## **5. Issue Resolution Process**

Wyandotte Creek Subbasin will pursue development of an issue-resolution process with neighboring subbasins in the Feather River Corridor group.

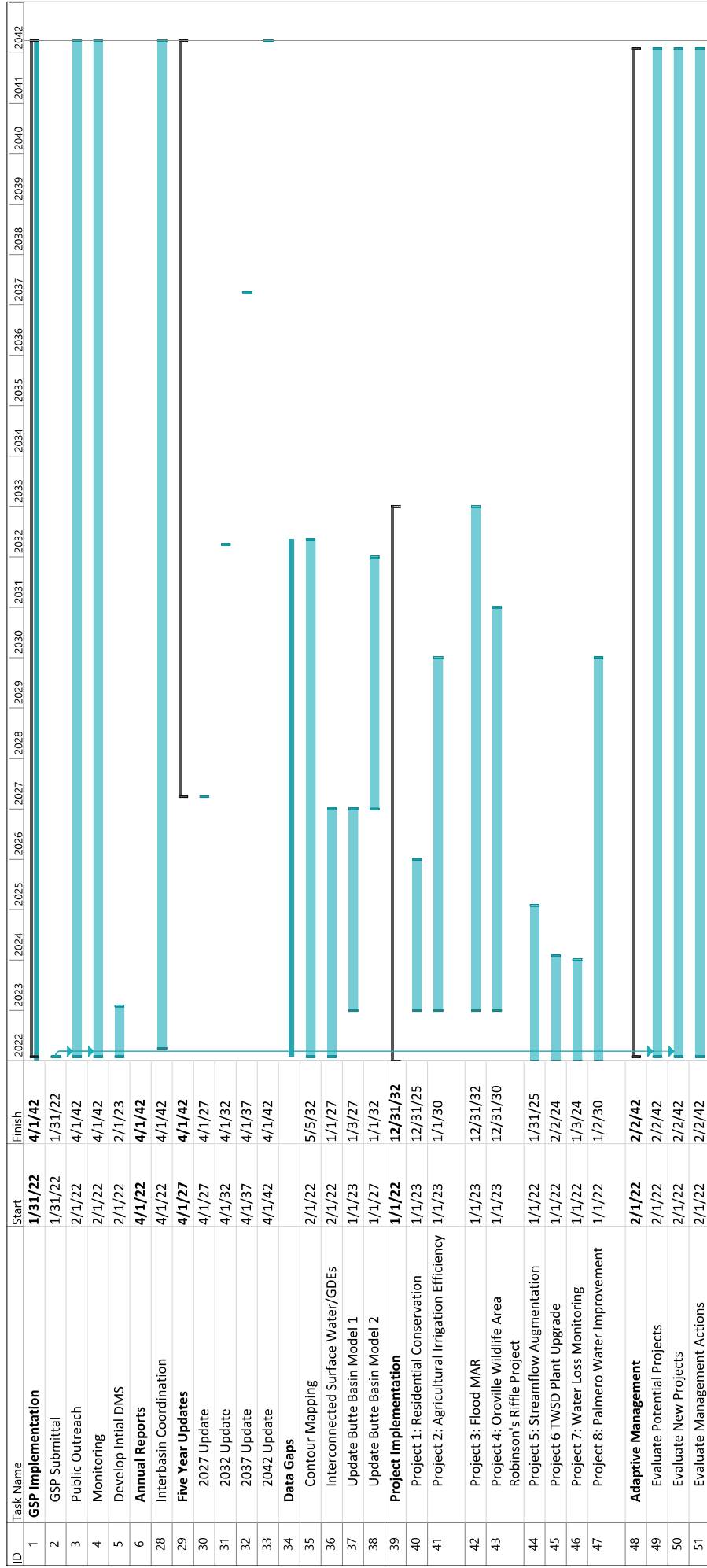


Figure 6-1  
Implementation Schedule

Summary  
Manual Task

Manual Summary Rollup  
Manual Summary

Start-only  
Finish-only