Wyandotte Creek
GROUNDWATER SUSTAINABILITY AGENCY

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# MEMORANDUM

To: Wyandotte Creek GSA Board

From: Becky Fairbanks, GSA Project Manager

Date: February 26, 2026

Subject: Sustainable Yield, Overdraft, and Project and Management Actions

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**Background**

California enacted the Sustainable Groundwater Management Act (SGMA) in 2014 to establish a statewide framework for the long-term sustainable management of groundwater resources. SGMA required local agencies to form Groundwater Sustainability Agencies (GSAs) and to develop and implement Groundwater Sustainability Plans (GSPs) for medium- and high-priority groundwater basins.

The Wyandotte Creek GSA adopted the Wyandotte Creek GSP in December 2021 and submitted it to the California Department of Water Resources (DWR) in January 2022. DWR approved the GSP in July 2023. Under SGMA, the GSA is required to submit its first Periodic Evaluation of the GSP to DWR by January 2027.

The Periodic Evaluation is intended to document groundwater conditions, assess progress toward sustainability goals, and describe the status of projects and management actions (PMAs) that support implementation of the GSP. To support this effort, the GSA contracted with Larry Walker Associates (LWA) to prepare the Periodic Evaluation and associated Plan Amendments.

**Purpose of Today's Item**

The purpose of today's agenda item is to:

- Provide an overview of sustainable yield and overdraft for inclusion in the Draft Periodic Evaluation and Plan Amendments,
- Discuss proposed updates to the methodology used to estimate sustainable yield and overdraft, and
- Request Board direction on the classification of Projects and Management Actions (PMAs) included in the GSP.

## Sustainable Yield and Overdraft – Methodology Update

Staff and the consultant team are recommending an revised approach that aligns the Periodic Evaluation with the methodology used in the GSP Annual Reports, which relies on measured groundwater levels at Representative Monitoring Sites (RMS) to calculate changes in groundwater storage over time.

This updated method:

- Uses observed data rather than model-only outputs,
- Provides a consistent and transparent basis for evaluating groundwater conditions, and
- Allows sustainable yield and overdraft estimates to be periodically re-evaluated as conditions change, including in response to climate variability.

Staff is requesting Board concurrence to update the methodology accordingly.

## Projects and Management Actions (PMAs)

The GSP includes a range of projects and management actions intended to address overdraft by either reducing groundwater demand or increasing groundwater recharge. Chapter 5 of the 2022 GSP provides descriptions of the PMAs and is attached for reference.

As part of the Periodic Evaluation and Plan Amendments, staff and LWA reviewed the existing PMA list and are proposing a simplified categorization to better reflect the GSA's implementation strategy and priorities.

The proposed categories are:

<u>GSA / County-Prioritized PMAs</u>
Projects that the GSA or Butte County are actively pursuing, or intends to pursue, to maintain or achieve groundwater sustainability in the subbasin. These projects represent the core implementation strategy of the GSP and are needed to achieve / maintain sustainability.

<u>Other Projects</u>
Projects led by other agencies or entities that may provide ancillary benefits to groundwater conditions but are not currently critical to achieving sustainability in the subbasin. These projects would be tracked by the GSA, as feasible, but are not relied upon to meet sustainability objectives.

This proposed categorization is intended to improve clarity, focus implementation efforts, and ensure transparency regarding which projects are essential to achieving sustainability under SGMA. Staff / consultant team are requesting that the Board weigh in regarding if any of the other projects should be elevated to one of the other project categories.

## Schedule and Next Steps

The Draft Periodic Evaluation and Draft Plan Amendments are expected to be released for public review and comment in September 2026, with a 45-day comment period. Staff plans to review public comments and present the final Periodic Evaluation and Plan Amendments to the Board for adoption in November 2026. The final documents will be submitted to DWR by January 2027, consistent with SGMA requirements.

## Requested Board Direction

Staff is requesting Board direction on the following items:

1. Approve updating the methodology used to estimate sustainable yield and overdraft to be consistent with the approach used in GSP Annual Reports.

2. Approve the proposed PMA classifications, including:
    a. GSA / County-Prioritized PMAs, and
    b. Other Projects not currently critical to achieving sustainability.

## Attachments

A. 2022 GSP Chapter 5: Project and Management Actions
B. Sustainable Yield, Overdraft, and PMAs presentation

# 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.

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## 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) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lease, CVRWQCB 401, CVFPB Encroachment Permit, DWR Encroachment Permit | |
| 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 | SWRCB Water Right Permit, CEQA | 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 | Division of Drinking Water, DWR | 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 |

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## 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 |

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## 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 | TWSD, 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 l 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.

| **Project Summary** | |
|---|---|
| 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.wyandottecreekgsa.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 |

February 26, 2026

# Wyandotte Creek Subbasin: Sustainable Yield, Overdraft, & Projects and Management Actions (PMAs)

Prepared by:

The LWA Team in coordination with the Wyandotte Creek GSA

Funding provided by the California Department of Water Resources

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Wyandotte Creek GROUNDWATER SUSTAINABILITY AGENCY

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## Agenda

- Periodic Evaluation and Plan Amendment Status update
- Sustainable Yield
- Projects and Management Actions (PMAs)
- Key Projects
- **Request for Feedback**

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## Actions for Board Consideration

1. Approve updating methodology to estimate sustainable yield and overdraft to be consistent with GSP annual reports.
2. Approve proposed PMA classifications:
   I. GSA / County-Prioritized PMAs
   II. Other PMAs – not currently critical to reaching/maintaining sustainability

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## Periodic Evaluation and Plan Amendment Timeline

- ❑ **2026 September** – Post draft Periodic Evaluation and Plan Amendments for public comments to allow for 45-day comment period
- ❑ **2026 November**– Review public comments and finalize Periodic Evaluation and Plan Amendments; to be adopted by BOD
- ❑ **2027 January** – GSP Periodic Evaluation and Plan Amendments are due to DWR (must address DWR's Recommended Corrective Actions - show progress)

| Critical Dates for the Wyandotte Creek Groundwater Subbasin | |
|---|---|
| 2022 | By January 31, submit GSP to Department of Water Resources (DWR) |
| **2027** | Evaluate GSP and amend |
| 2032 | Evaluate GSP and amend, if warranted |
| 2037 | Evaluate GSP and amend, if warranted |
| 2042 | Achieve sustainability for the Wyandotte Creek Subbasin |

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## Periodic Evaluation and Plan Amendment Status

- Both the Periodic Evaluation (PE) and the Plan Amendments (PA) are currently complete with information available through Water Year 2024
- Will need to be updated to incorporate data from Water Year 2025 and newly collected data from installed monitoring sites prior to posting for public comment:
  - Groundwater level measurements
  - Water quality measurements
  - InSAR measured subsidence
  - Progress on **Projects and Management Actions (PMAs)**

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## 2022 GSP Sustainable Yield and Overdraft

- **Sustainable Yield (SY):** Total amount of groundwater you can sustainably pump within the Subbasin without causing undesirable results
- **Overdraft:** Amount of groundwater being pumped over the SY, on average
- Previously used **Butte Basin Groundwater Model (BBGM)** to calculate SY and overdraft (GSP Section 2.3.6):
  - SY = 46,100 AF per year (2000 – 2018)
  - Overdraft = 1,000 AFY (2000 – 2018)
  - Future Overdraft = up to 3,700 AFY (with climate change)

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# Annual Report Method

## Use of observed groundwater levels

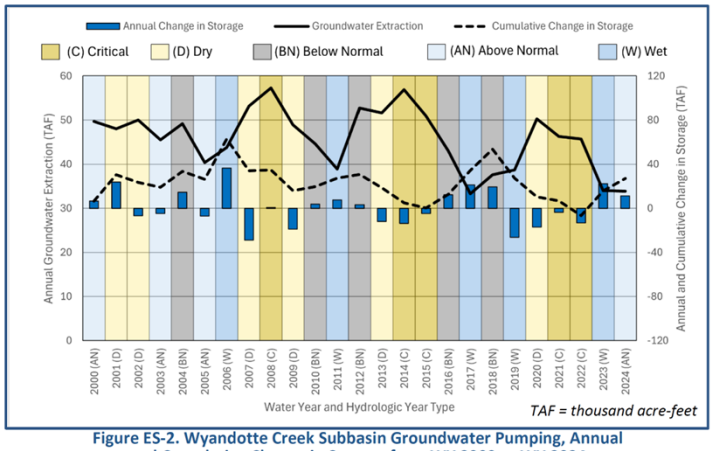
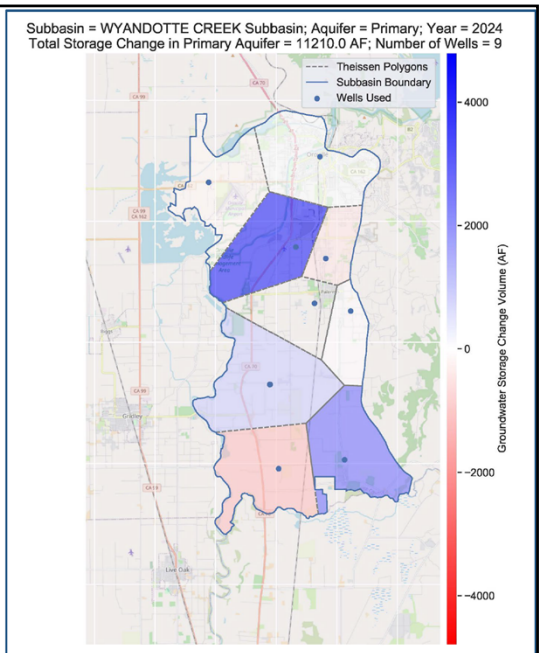



Figure ES-2. Wyandotte Creek Subbasin Groundwater Pumping, Annual and Cumulative Change in Storage from WY 2000 to WY 2024




*uses the 9 RMS wells from the 2022 GSP

Figure 4-2. Wyandotte Creek Subbasin Change in Groundwater Storage from Spring 2023 to Spring 2024

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# Amended GSP Sustainable Yield and Overdraft

- Use **measured data from Annual Reports** to calculate change in storage and SY (based on 10-year rolling average, 2015 - 2024):

  **SY = Groundwater Pumping + Change in Storage**

- Updated SY = 43,600 AF per year
- Updated Overdraft / Change in Storage = +2,200 AFY
- No estimated overdraft - Groundwater levels have increased!!
- Overdraft and SY will be re-evaluated periodically to account for climate change and other changing conditions

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# 2022 GSP Projects and Management Action (PMA) Categorization

- PMAs aim to address overdraft within the Subbasin by (1) decreasing pumping or (2) increasing groundwater storage via recharge
- The scale and number of PMAs in the GSP should be aligned with the level of effort anticipated to maintain/achieve sustainability in the subbasin
- There were four project categories in the 2022 GSP:

| Planned Projects | Potential Projects | Conceptual Projects | Management Actions |
|---|---|---|---|
| 1. Residential Water Conservation | 1. Intra-Basin Water Transfer | 1. Recharge/Injection Well | 1. General Plan Updates |
| 2. Agricultural Irrigation Efficiency | 2. Agricultural Surface Water Supplies | 2. Extend Orchard Replacement | 2. Well Permitting Ordinance |
| 3. Flood MAR | 3. Well Upgrades | | 3. Domestic Well Mitigation |
| 4. Oroville Wildlife Area Robinson's Riffle Project | 4. Fuel Management for Watershed Health | | 4. Landscape Ordinance |
| 5. Streamflow Augmentation | 5. Removal of Invasive Species | | 5. Expansion of Water Purveyors' Service Area |
| 6. TWSD Water Treatment Capacity Upgrade | | | |
| 7. Water Loss Monitoring | | | |
| 8. Palermo Clean Water Consolidation Project | | | |

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# Proposed PMA Categorization

**Goal: clarify in the amended GSP which Projects are needed to achieve/maintain sustainability**

- **GSA / County-Prioritized PMAs:**
  - **Completed:** a finished project and benefits have been reported
  - **In-progress:** a project in planning, design, or implementation phase – requires funding to proceed
  - **Potential:** a project that has been developed – to be implemented as needed
- **Other Projects:** Led by other agencies and not critical to achieving sustainability. Status will be tracked by the GSA as feasible

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# GSA / County Prioritized PMAs

**Projects the GSA is or will pursue to maintain/achieve sustainability in the subbasin.**

| Completed Projects | In-Progress Projects |
|---|---|
| 1. TWSD Water Treatment Capacity Upgrade | 1. Palermo Clean Water Consolidation Project<br>2. Regional Conjunctive Use Project*<br>3. Residential Water Conservation (Cal Water)<br>4. Agricultural Irrigation Efficiency |

| Potential Projects |
|---|
| 1. Extend Orchard Replacement (as needed)<br>2. Domestic Well Mitigation Management Action (as needed) |

***New Project to be added to the amended GSP.** Combines and could replace the Intra-Basin Water Transfer, Agricultural Surface Water Supplies, and Flood MAR (e.g., Palermo Flood Control) projects from the 2022 GSP

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# Other Projects

For Consideration: The following projects are listed as "Other Projects." They may have benefits to groundwater conditions but are not part of the GSA's strategy to maintain/achieve sustainability. Projects will be tracked, as feasible.

**Board Question: Should any of these be elevated to one of the other project categories (previous slide)?**

| Other Projects |
|---|
| 1. Oroville Wildlife Area Robinson's Riffle Project (SBFCA)<br>2. Water Loss Monitoring (Cal Water, SFWPA, TWSD)<br>3. Well Upgrades (TWSD)<br>4. Fuel Management for Watershed Health<br>5. Removal of Invasive Species<br>6. Streamflow Augmentation<br>7. Recharge Well / Injection Well (TWSD)<br>8. General Plan Updates Management Action<br>9. Well Permitting Ordinance Management Action<br>10. Landscape Ordinance Management Action |

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# KEY PROJECT:
# Palermo Clean Water Consolidation Project

Project Summary:

- 110 existing connections, proposed project will connect 380 additional parcels
- Includes installation of 40,000 linear feet of water mains, laterals, meters/boxes, valves, hydrants
- 175 Letters of Intent to connect

Subproject: Palermo Dry Well Consolidation Project

- Construction Management funded by DWR Urban and Multi-Benefit Drought Relief Program ($525,000)
- Construction Management funded by Butte County American Rescue Plan (ARPA)
- 6,000 linear feet of water main with 49 service laterals to parcels, meter boxes, as well as valves and hydrants
- Saves 10 acre-feet of groundwater
- Construction completed October 2025, Site Visit with DWR November 2025

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# KEY PROJECT:
# Palermo Clean Water Consolidation Project

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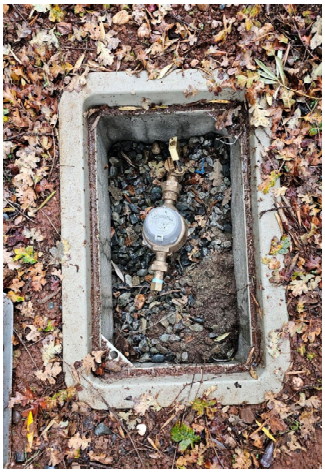
## KEY PROJECT:
## Palermo Dry Well Consolidation



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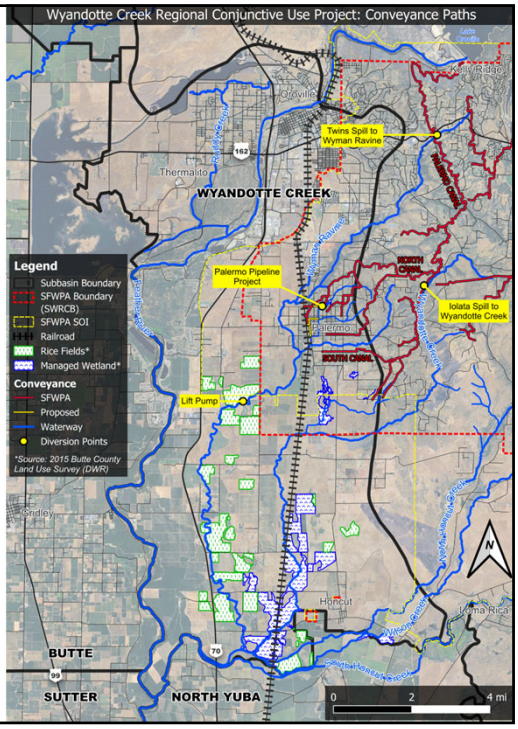
## KEY PROJECT:
## Regional Conjunctive Use Project

- Identified potential surface water supplies:
  - Palermo flood water
  - SFWPA water
- Route available surface water into Wyman Ravine towards rice fields and managed wetlands that have historically relied on groundwater.
- Currently in design phase to prepare for infrastructure upgrades at Twins Spill and in Palermo.

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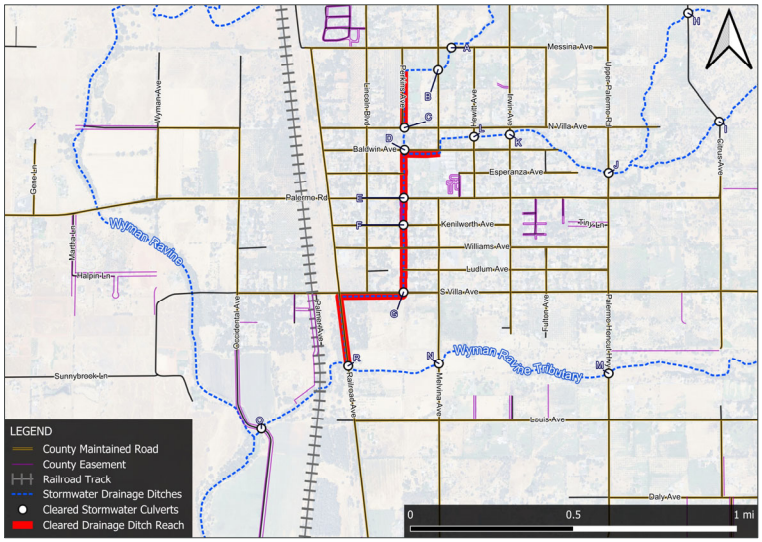
## Pilot Recharge Project

Drainage ditches were cleared to convey floodwater away from Palermo towards potential recharge sites (e.g., rice fields).

Cost: ~$100,000 to clear 5,580 feet (~$18.00 per linear foot) - includes administration, permits, and implementation)

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## Actions for Board Consideration

1. Approve updating methodology to estimate sustainable yield and overdraft to be consistent with GSP annual reports.
2. Approve proposed PMA classifications:
   I. GSA / County-Prioritized PMAs
   II. Other Projects – not critical to reaching sustainability currently

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# Thank You

lwa
LARRY WALKER
ASSOCIATES

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