Yuba County IRWMP| 2015 UPDATE

APPENDIX 2-1
Environmental Justice/Disadvantaged Communities Outreach

Yuba Integrated Water Management Group
Environmental Justice / Disadvantaged Communities Outreach

Yuba County has a fast-growing Latino community. As of the 2010 census, Latinos make up 25% of the county's population, up from 17.4% the previous census. 18% of the population in the county speaks Spanish and more than a third of those (37.3%), have limited or no English proficiency.

Due in part to this language isolation, the Latino community is not very engaged in water planning processes and a lot of the information and engagement opportunities being generated are not effectively reaching this audience. It is therefore imperative for any comprehensive water planning to proactively engage this community.

To better understand the water needs of the Latino community in Yuba County, we reached out to members of the Alliance for Hispanic Advancement (AHA) for one-on-one in-depth interviews. We also conducted man-on-the-street interviews with Latino residents in Olivehurst, Linda and Marysville, which are the three communities in Yuba County with the largest Latino populations: 36.6%, 32.5% and 24.2% respectively.

Below are some of the main findings:

Water Quality

- The Latino community is overwhelmingly unaware of water issues, the watershed or where their water comes from.
- None of the man-on-the-street interviewees could confidently identify their water purveyor. The vast majority didn't know and a few tentatively answered that the city provided their water. Most of the interviewees live in apartment complexes, so utilities may be included in their rent, thus eliminating direct interaction with their water purveyor.
- None of the people we spoke with trust the quality of the water that comes into their homes. Several people reported a foul smell in their water, identifying it as perhaps chlorine or another chemical. One of the in-depth interviewees claimed that the smell was caused by sewer water being recycled and used as potable water. There's a dearth of trust.
- Because they mistrust the quality of the water, many instead purchase bottled water. Every man-on-the-street interviewee volunteered that they purchase bottled water rather than drink the water that comes out of their faucets, even as some lamented the high cost of doing so. One in-depth interviewee estimated that about 80% of the Latino community in Yuba County purchases bottled water.
- Changing perceptions about the quality of the water will be a difficult proposition. When asked whether information showing the quality of their water would improve their trust and confidence in the water, responses

were evenly split. About half of the respondents said information would help them trust the water. Close to the same number of people stated that it would not affect them and that they would continue purchasing bottled water.

Recreational Use

- Recreational use of water was touched upon briefly. It was noted that Latinos have not typically used the rivers in the area for recreational purposes, but that they are beginning to do so more and more. As this trend continues, the County needs to prepare for higher utilization of these resources.

Environmental/Climate Change

- In-depth interview respondents stressed that the community needs education about how their actions affect water quality.
- Most man-on-the-street interviewees were unaware of whether or not they lived in a designate flood plain. One respondent said he believed that he did, because he had heard that years ago snowmelt flooded the area where he lives.
- None of the man-on-the-street respondents were aware of any city- or county-led efforts or plans to alleviate the impacts of heat waves. Respondents were not aware of any cooling centers or places they could go to in order to escape the effects of the heat.

While the number of interview participants is not large enough to constitute a statistically significant sample whose findings may be applied across Yuba County's Latino population, it does provide meaningful information that can be used as the foundation for future outreach and engagement efforts.

Potential Next Steps

There are several potential next steps that can be taken to further learn the needs of the Latino community and better engage this important stakeholder group.

During the initial outreach phase, it was identified that the Latino community needs more education about the impact their actions have on the environment. Additional man-on-the-street interviews could be conducted, focusing specifically on identifying areas where environmental education would be beneficial. From experience in other regions, we could make an educated guess that some of these issues may be related to improper disposal of motor oil and cooking fats, oils and grease; proper cleanup and stewardship of rivers, lakes and other waterways; and the negative environmental impact of the large number of water bottles used by stakeholders. These are guesses, albeit based on experience in other Latino communities. However, it is imperative that we reach out to the community to clearly identify these topics, rather than assuming that they are the

same from community to community. This information would help identify education needs and develop education models to enhance the community's awareness of the impact their actions have on the watershed.

During the initial outreach, one of the organizations that was identified and engaged was the Alliance for Hispanic Advancement (AHA). Further engagement of this organization could be beneficial. Yuba Integrated Water Management Group representatives could attend one of AHA's scheduled meetings and present on water issues and specific projects that are being considered, especially those of potential significance to the Latino community. Input from AHA could be helpful in better understanding the priorities of this community and identifying additional issues or projects not currently being considered. It would also further strengthen the link between both organizations, potentially forging stronger involvement from Latino leaders in water issues.

A third potential next step would be identifying stakeholders or organizations within Yuba county who are already working on water education and outreach efforts and collaborate with them to implement efforts specifically targeting Latino communities. Existing or proposed water projects could also be identified, that would benefit from incorporating Latino outreach and education elements.

Finally, the Yuba Integrated Water Management Group could take steps to help educate the Latino community about the quality and safety of their water, and try to help curtail the high use of bottled water. A targeted "stop drinking bottled water" campaign could include development of educational materials, including flyers, brochures, public service announcements and more, as well as public relations efforts, such as engaging Spanish media and development of Spanish news releases to increase coverage of the issue.

Additional efforts on this issue are needed. Whether it is one of the suggestions listed above, a comprehensive combination of some or all of the suggestions or different ideas altogether, the Latino community is growing fast and needs to be effectively engaged. Any water projects or issues must include the Latino community as a focus for it to be successful and relevant. As time passes, this becomes more critical and harder to accomplish.

This document and the efforts that led to its development are the first step in this process. Additional work is needed and the Yuba Integrated Water Management Group is in a position to make it happen.

Yuba Regional Water Management Group
Environmental Justice / Disadvantaged Communities Outreach

Yuba County has a substantial and fast-growing Latino community. As of the 2010 census, Latinos make up 25% of the county's population, up from 17.4% the previous census. 18% of the population in the county speaks Spanish and more than a third of those (37.3%), have limited or no English proficiency.

Due in part to this language isolation, the Latino community is not very engaged in water planning processes and a lot of the information and engagement opportunities being generated are not effectively reaching this audience. It is therefore imperative for any comprehensive water planning to proactively engage this community.

To better understand the water needs of the Latino community in Yuba County, we reached out to members of the Alliance for Hispanic Advancement (AHA) for one-on-one in-depth interviews. We also conducted person-on-the-street interviews with 17 Latino residents in Olivehurst, Linda and Marysville, which are the three communities in Yuba County with the largest Latino populations: 36.6%, 32.5% and 24.2% respectively.

Below are some of the main findings:

Water Quality

- The Latino community is overwhelmingly unaware of water issues, the watershed or where their water comes from.
- None of the person-on-the-street interviewees could confidently identify their water purveyor. The vast majority didn't know and a few tentatively answered that the city provided their water. Most of the interviewees live in apartment complexes, so utilities may be included in their rent, thus eliminating direct interaction with their water purveyor.
- None of the people we spoke with trust the quality of the water that comes into their homes. Several people reported a foul smell in their water, identifying it as perhaps chlorine or another chemical. One of the in-depth

interviewees claimed that the smell was caused by sewer water being recycled and used as potable water. There's a dearth of trust.

- Because they mistrust the quality of the water, many instead purchase bottled water. Every person-on-the-street interviewee volunteered that they purchase bottled water rather than drink the water that comes out of their faucets, even as some lamented the high cost of doing so. One in-depth interviewee estimated that about 80% of the Latino community in Yuba County purchases bottled water.
- Changing perceptions about the quality of the water will be a difficult proposition. When asked whether information showing the quality of their water would improve their trust and confidence in the water, responses were evenly split. About half of the respondents said information would help them trust the water. Close to the same number of people stated that it would not affect them and that they would continue purchasing bottled water.

Recreational Use

- Recreational use of water was touched upon briefly. It was noted that Latinos have not typically used the rivers in the area for recreational purposes, but that they are beginning to do so more and more. As this trend continues, the County needs to prepare for higher utilization of these resources. Issues of consumption of local fish with associated health risks may also arise as a result of this increased use. Lastly, signage for local recreation areas in Spanish (or using the universal symbols) should be considered.

Environmental/Climate Change

- In-depth interview respondents stressed that the community needs education about how their actions affect water quality.
- Most person-on-the-street interviewees were unaware of whether or not they lived in a designated flood plain. One respondent said he believed that he did, because he had heard that years ago snowmelt flooded the area where he lives.
- None of the person-on-the-street respondents were aware of any city- or county-led efforts or plans to alleviate the impacts of heat waves.

Respondents were not aware of any cooling centers or places they could go to in order to escape the effects of the heat.

While the number of interview participants is not large enough to constitute a statistically significant sample whose findings may be applied across Yuba County's Latino population, it does provide meaningful information that can be used as the foundation for future outreach and engagement efforts.

Recommended Actions

There are several short-term and long-term next steps that can be taken to further learn the needs of the Latino community and better engage this important stakeholder group.

Short-Term Activities

	Recommendation	Description
1	Presentations to Latino community-based organizations	During the initial outreach, one of the organizations that was identified and engaged was the Alliance for Hispanic Advancement (AHA). Further engagement of this organization and other similar ones would be beneficial. Yuba Regional Water Management Group representatives should attend one of AHA's scheduled meetings and present on water issues and specific projects that are being considered, especially those of potential significance to the Latino community. Input from AHA would be helpful in better understanding the priorities of this community and identifying additional issues or projects not currently being considered. Working with AHA to identify the Top 3 water-related issues, for instance, would serve to narrow the focus of subsequent outreach. It would also further strengthen the link between both organizations, potentially forging stronger involvement from Latino leaders in water issues and therefore finding more effective ways to leverage the education opportunities by coordinating with Leadership outreach.
2	Additional person-on-the-street interviews	During the initial outreach phase, it was identified that the Latino community needs more education about the impact their actions have on the environment. Additional person-on-the-street interviews should focus specifically on identifying areas where environmental education would be

		beneficial and on finding out what individuals or organizations locals would trust as purveyors of the information. From experience in other regions, we could make an educated guess that some of these issues may be related to improper disposal of motor oil and cooking fats, oils and grease; proper cleanup and stewardship of rivers, lakes and other waterways; and the negative environmental impact of the large number of water bottles used by stakeholders. These are guesses, albeit based on experience in other Latino communities. However, it is imperative that we reach out to the community to clearly identify these topics, rather than assuming that they are the same from community to community. This information would help identify education needs and develop education models to enhance the community's awareness of the impact their actions have on the watershed.
3	Develop bottled water and drought brochures	Create and distribute a brochure, in Spanish, educating consumers about the quality and cost of tap water versus bottled water and the benefits of changing their current reliance on bottled water, as well as the environmental consequences of using bottled water. Copy for a similar brochure has already been developed for another water region, so it would only require minor revisions (e.g. quotes by local leaders, pictures and diagrams that are locally relevant) to localize the materials for the Yuba community. Sponsorship of the brochure by organizations such as AHA and promotion in local Spanish-language media should be considered to ensure that the source of the information is trusted by the larger community. Another option would be to create a bilingual flyer with the same information and distribute it as a bill insert to all water agency customers. Further, education on the impacts of drought could also be included in this brochure or in a separate publication.

Strategies will need to be developed to ensure that renters also receive these brochures.

Long-Term Activities

	Recommendation	Description
1	Work with existing water groups to incorporate focus on Latino issues	Identify stakeholders or organizations within Yuba county who are already working on water education and outreach efforts and collaborate with them to implement efforts specifically targeting Latino communities. Existing or proposed water projects could also be identified, that would benefit from incorporating Latino outreach and education elements.
2	Develop Spanish water quality education effort	The Yuba Regional Water Management Group could take steps to help educate the Latino community about the quality and safety of their water, and try to help curtail the high use of bottled water. A targeted campaign designed to reduce use of bottled water could include development of educational materials (for use in schools, as well as with adults), such as flyers, brochures, public service announcements (radio and television) and more, as well as public relations efforts, such as engaging Spanish media and development of Spanish news releases to increase coverage of the issue.
3	Outreach to Latino leaders and key community members	Engage additional Latino leaders and key community members to have an ongoing feedback loop into the Latino community. By doing so, the Yuba Regional Water Management Group can stay atop the changing needs of the Latino community and adapt as those needs change. Furthermore, engaging Latino leaders and other community members enhances the opportunity to have that

community represented at the table as decisions on water issues and water planning are being made.

Additional efforts on this issue are needed. Whether it is one of the suggestions listed above, a comprehensive combination of some or all of the suggestions or different ideas altogether, the Latino community is substantial in number and growing fast, and needs to be effectively engaged. Any water projects or issues must include the Latino community as a focus for it to be successful and relevant. As time passes, this becomes more critical and harder to accomplish.

This document and the efforts that led to its development are the first step in this process. Additional work is needed and the Yuba Regional Water Management Group is in a position to make it happen.

APPENDIX 4-1

Inter-IRWMP Coordination Reports

Inter-IRWMP Coordination Reports
June 2014

Background: Representatives from the Yuba County RWMG volunteered to contact adjacent IRWM regions to discuss opportunities for collaboration and ongoing coordination and communication between regions. The following notes are taken from these inter-regional conversations.

AMERICAN RIVER BASIN

Yuba County RWMG Member: Scott Matyac, YCWA
American River Basin: Rob Swartz

1. What is the status of your IRWM Plan?

   - The plan was adopted July 11, 2013.
   - Completed the DWR consistency review process as of June 6, 2014.

2. Is your IRWMP online?

   - Yes - http://irwm.rmcwater.com/rwa/login.php

3. What are the key issues that have been identified in your region?

   Section 5 identifies priorities 5.2 and 5.4

   - Need to have balance in decision making.
   - Adopt a vision statement for Plan ahead of goals and objectives. It took a year and half of meetings.
   - In planning, need attitude manage for community, economy, and environment.

4. What are some inter-regional concerns or opportunities that exist from your perspective?

   Section 3.4 describes surrounding regions:

   - Inter-regional funding issues.
   - Who knows what will be left in third round.
   - Who will/should have priority.

5. What are some potential inter-regional projects that might address these concerns/opportunities?

   - Somewhere down the road, look at basin and manage it for conjunctive groundwater management.

- Think more broadly.
- Look at how banking and exchange can be done to the benefit of northern California.

6. What is the mechanism or means by which our regions could continue to coordinate/ cultivate ongoing collaboration (i.e., representatives attend each other's RWMG meetings periodically or one annually; convene a conference call, etc… any other ideas?)?

- Add to distribution lists.
- Commit to annual check in.
- Lunch once a year with a couple of key staff and consultants.
- Attending RWMG meetings is time consuming with little return.

NORTH SACRAMENTO VALLEY

Yuba County RWMG Members: Scott Matyac, YCWA and Jim Brobeck, AquAlliance
North Sac Valley IRWM: Vicki Newlin

1. What is the status of your IRWM Plan?

- On March 3, 2014, the Board adopted the Revised Draft IRWMP except for pages 4-9 through 4-23 that addresses the Climate Change Sensitivity Assessment. The Board directed County TAC staff to review those pages and propose edits. The edits were considered by Board on April 14, 2014, and the Board unanimously accepted the amendments and adopted the final plan. The final plan was forwarded to DWR for review which is anticipated to be completed by June.

2. Is your IRWMP online?

- Yes - http://www.nsvwaterplan.org/

3. What are the key issues that have been identified in your region?

Establishing goals and objectives to enhance water reliability for ecosystems, farms, municipal, and industrial uses.

The goals, listed in non-priority order are:

- Water Supply Reliability
- Flood Protection and Planning
- Water Quality Protection and Enhancement
- Watershed Protection and Management
- Integrated Regional Water Management Sustainability

- Public Education and Information Dissemination

4. What are some inter-regional concerns or opportunities that exist from your perspective?

   Plan specifically mentions the need to "coordinate with neighboring IRWM regions to identify opportunities to enhance water management."

   - Watershed protection and management.
   - Progressive forest management can enhance water quality and yield in the Feather/Yuba River drainages.
   - Improving and protecting riparian and fish habitat and fish passage.
   - Flood management because flood waters can transcend jurisdictional boundaries.
   - Shared aquifers and waterbodies such as creeks and rivers, along with surface water district boundaries that overlap county boundaries, all offer opportunities for increased coordination in the management of water resources within the region.

5. What are some potential inter-regional projects that might address these concerns/ opportunities?

   - Surface water streams and creeks as well as the aquifer systems beneath the ground do not recognize traditional political boundaries, and many will require coordination with other RWMGs.
   - Currently there are over 120 projects included in the NSV IRWMP.
   - Rather than identify specific projects for coordination at this time, we invite other regions to familiarize themselves with these projects to look for coordination opportunities.
   - Project associated with either the Sacramento or Feather River beg for inter-regional coordination for flood control and management projects, as well as water supply reliability efforts.
   - Ecosystem restoration programs targeting specific species located throughout the larger Sacramento Hydrologic Region.

6. What is the mechanism or means by which our regions could continue to coordinate/ cultivate collaboration?

   - During the development of the NSV IRWMP, staff members coordinated with other IRWM regions through the Roundtable of Regions.
   - That group holds periodic conference calls when specific issues regarding IRWMP management and coordination surface.
   - One example of this is the formation of the Strategic Focus Group, which pulled its membership from the Roundtable of Regions.
   - This group worked with DWR to normalize and improve the Strategic Plan for IRWMP developed internally at DWR.

- Initially, the NSV IRWMP representatives did attend other neighboring RWMG meeting.
- We anticipate that now that the plan is complete, it will free up time to attend other RWMG meetings and report back to the NSV IRWMP.
- Look forward to the return of that collaboration and coordination in this manner and will consider other approaches that your group may have to offer.

COSUMNES AMERICAN BEAR (CABY)

Yuba County RWMG Member: Rachael Hutchinson (SYRCL)
CABY IRWM: Izzy Martin

- May 30, 2014, new plan adopted.
- Nevada City Implementation Grant almost done.
- Sierra Fund awarded $5.5 million through Round 2 Proposition 84 Implementation Funding, contract nearly finalized (start date 2/4/2014).
- Needs: Leadership/governance, Tribal outreach, DAC outreach.

MOKULUMNE AMADOR CALAVERAS (MAC)

Yuba County RWMG Member: Rachael Hutchinson (SYRCL)
MAC IRWM: Rob Alcott

- Plan adopted January 2013, pending DWR approval.
- MOKEWISE project: 878 million (2013-2015): MAC and SJ groundwater authority for wet weather flows/groundwater recharge.
- Round 1: 2.3 million, 3 projects, complete by December 2014.
- Round 2: 2.1 million, 3 projects, complete by February 2014.
- Issues: lack of Tribal involvement, governance.

UPPER FEATHER RIVER WATERSHED

Yuba County RWMG Member: Rachael Hutchinson (SYRCL)
Upper Feather River Watershed IRWM: Randy Wilson

- Plan adopted under Prop 50, new plan just getting started July 2014.
- Issues:
    - Waiting on county General Plan.
    - Need to revise MOU for working group.
    - Need board members that reflect stakeholders (County, RCDs, GW basin, Tribal, Almanor, USFS).
    - Need to work hard to keep new plan on track.

Yuba County IRWMP - 2015 UPDATE

APPENDIX 5-1

Letters Soliciting Tribal Participation

Note to reviewers: Additional letters will be added to this appendix when sent.

October 2, 2013

To: Tribes and Individuals with Tribal Interests

Subject: Tribal Participation in the Integrated Regional Water Management (IRWM) Process, Yuba County, California.

The Yuba County Water Agency (YCWA) has signed a contract with the State of California to act as grantee for the Integrated Regional Water Management (IRWM) process in Yuba County, California. The IRWM process has been in place since 2005, following passage of Proposition 50 by the voters of California, and has become one of the primary vehicles for water-related planning and project funding in California. This state-wide process has resulted in the identification of over 45 planning areas, including Yuba County.

YCWA is undergoing an effort to produce an updated region-wide planning document (or IRWM Plan, IRWMP) through Yuba County's IRWM governing body, the Regional Water Management Group (RWMG), as mandated by the State of California. The RWMG wishes to find meaningful ways to engage tribal members in this update of the Yuba IRWMP.

Attached is a handout that gives an overview of IRWM and the IRWMP document, as well as opportunities for tribal input and engagement. It is important that you know that the IRWM process has two primary components: development of a plan which identifies key water management issues and objectives and projects to address those issues, and provision of a venue to discuss water management issues over time.

YCWA is inviting you to participate in two outreach meetings designed for tribal engagement:

Public Outreach Meeting
October 16, 2013
9:00 am – 3:00 pm
Yuba County Building, Wheatland Room
915 8th Street, Suite 123
Marysville, CA

<u>Tribal Only</u> Outreach Meeting
October 30, 2013
9:00 am – 3:00 pm
Yuba County Water Agency Office
1220 F Street
Marysville, CA

This second meeting will be held to discuss sensitive and confidential information about IRWM, the IRWMP, the process for updating the Plan, and to provide a venue for tribal members to discuss how to maximize their participation in the process and to develop feedback to the RWMG as to how to best facilitate tribal involvement.

It is our intention that this planning effort will eventually result in significant state funding for locally identified water resources related projects, and we would welcome your involvement.

1220 F Street • Marysville, CA 95901-4740 • 530.741.6278 • Fax: 530.741.6541
www.ycwa.com

YCWA invites your comments and participation in the IRWM. Please contact Katie Burdick with Burdick & Co. at 530-265-2874 or katie@burdico.net if you would like to explore ways in which you can be involved in this IRWMP update and make your projects eligible for funding, or to ensure that your traditional practices are integrated into projects that are being developed by non-tribal members. Thank you for your assistance.

Sincerely,

Curt Aikens

Curt Aikens
General Manager

Enclosure (1)

DISTRIBUTION LIST

Nevada City Rancheria Richard Johnson, Chair P.O. Box 825 Nevada City, CA 95959	**Washoe Tribe of Nevada and California** Darrel Kizer 919 US Hwy 395 South Gardnerville, NV 89410
Tsi Akim Maidu Don Ryberg, Chair PO Box 1316 Colfax, CA 95713	**United Auburn Indian Community** David Keyser, Chair 10720 Indian Hill Rd Auburn, CA 95603
Concow Maidu Tribe of Mooretown Rancheria Guy Taylor, Director Feather Falls Casino 1 Alverda Dr. Oroville, CA 95966	**Greenville Rancheria Tribe of Maidu Indians** Kyle Self, Chair PO Box 279 410 Main Street Greenville, CA 95947
Mechoopda Indian Tribe of Chico Rancheria Dennis Ramirez, Chair 125 Mission Ranch Road Chico, CA 95926	**Shingle Springs Rancheria** Nicholas Fonseca, Chair PO Box 1340 Shingle Springs, CA 95682
Tyme Maidu Tribe of Berry Creek Rancheria Jim Edwards, Chairperson 5 Tyme Way Oroville, CA 95966	**Pakan-Yani Band of Strawberry Valley Rancheria** Cathy Bishop, Chairperson 1540 Strader Avenue Sacramento, CA 95815
Maidu/Miwok Jill Harvey 117999 McCourtney Road\ Grass Valley, CA 95949-9759	**Nisenan/Maidu** April Moore 19630 Placer Hills Road Colfax, CA 95713-9617
Enterprise Rancheria of Maidu Indians Glenda Nelson, Chairperson 1940 Feather River Blvd, Suite B Oroville, CA 95965	**Maidu Nation** Claire LeCompte P.O. Box 204 Susanville, CA 96130
Tyme Maidu Tribe of Berry Creek Rancheria Jim Edwards, Chairperson 5 Tyme Way Oroville, CA 95966	**Maidu Cultural and Development Group** Warren Gorbet, Chairperson P.O. Box 426 Greenville, CA 95947-0426
Colfax-Todd Valley Consolidated Tribe Lavina Suehead, Chairperson P.O. Box 4884 Auburn, CA 95604-4884	**Susanville Indian Rancheria** Stacy Dixon, Tribal Chairman P.O. Box U/745 Joaquin Street Susanville, CA 96130
Tyrone Gorre One River Medicine 1700 Meadow Vista Rd Meadow Vista, CA 95722	**Tsi Akim** Bill Jacobson 17069 Vintage Drive Grass Valley, CA 95949

Yuba County IRWMP - 2015 UPDATE

APPENDIX 5-2
Tribal Outreach

INTEGRATED REGIONAL WATER MANAGEMENT TRIBAL MEETING

Yuba County Integrated Regional Water Management Plan Update

October 30, 2013 (Wednesday)
9:00 AM to 12:00 PM

Yuba County Water Agency
1220 "F" Street, Marysville, CA 95901

AGENDA

Desired Outcomes of the Meeting:

1. Introduce Tribal members to the Integrated Regional Water Management (IRWM) Program.
2. Develop a clear understanding of what an Integrated Regional Water Management Plan (IRWMP) is and how the Plan is used and implemented.
3. Describe how the process has unfolded since June 2013, including the process of Tribal outreach
4. Explain the project development options presented by preparation of the Plan and clarify how Tribes may participate in and benefit from this process.
5. Clarify opportunities for involvement by Tribal entities.
6. Answer questions that participants have about the program, the IRWMP and ongoing Plan implementation.

9:00 Welcome, Ground Rules, Introductions and Agenda Overview

9:30 IRWMP Update - Overview and Timeline

- What is IRWM? An IRWMP?
- Purpose of Plan and Plan components
- History of this Planning process (Phase 1: 2006 – 2009, Phase 2: process since June 2013)
- Tribal Outreach efforts – Phase 1 vs. Phase 2
- Overall process and schedule for Plan Update – materials developed to date

10:00 IRWM Process – Governance and Decision-making

- Regional Water Management Group (RWMG) – what it is, what it does and how Tribal entities can participate
- Decision-making structure
- Upcoming RWMG meeting schedule

10:30 Opportunities for Tribal Involvement

- Describing the region's resources, identifying issues related to water management, defining measurable management objectives, developing projects to benefit critical Tribal water needs, informing projects developed by other stakeholders
- How to participate outside of RWMG structure

11:00 Q & A - Responses to Participant Questions

11:45 Next Steps

12:00 Adjourn

Meeting Summary

Name	Tribal Meeting # 1 Yuba County IRWMP Update	**Date**	October 30, 2013
Location	1220 F St., Marysville, CA	**Time**	9 am – 11 am
Attendees	Ren ???, Marie Rainwater, Dawn Ramsey, Katie Burdick	**Scribe**	Katie Burdick

Key Points Discussed		
No.	**Agenda Items**	**Highlights**
1.	Introductions, Ground Rules,	▪ Dawn presented the Ground Rules for the meeting (attached)
2.	IRWMP Update – Overview and Timeline	▪ Ren was familiar with both the IRWM process and documents (though not the Yuba Plan specifically) ▪ Katie reviewed the IRWM program, the process and timing for preparation of the Yuba IRWM Plan (IRWMP), the options for project development and the functions of the decision-making body (the Regional Water Management Group/RWMG)
3.	Governance and Decision-making	▪ The current governance structure (the Regional Water Management Group/RWMG) reached its decisions through consensus with a 75% super majority vote option of consensus cannot be reached. ▪ There is currently one vote per entity if a vote is called and the entity must have participated in two of last three meetings in order to participate. ▪ There will need to be some options identified to allow for Tribal participation in the upcoming meetings
4.	Opportunities for Tribal Involvement	▪ Opportunities include: reviewing and commenting on Plan chapters (such as Region Description, Issues, Objectives, Long-term IRWMP Governance/Decision-making body, etc.), participating in development and design of projects to address critical Tribal water quantity or supply issues, collaboration with other project proponents to integrate Tribal ancestral knowledge and perspectives into design of natural resource related projects, and participation in future project implementation grants funded through the Yuba IRWM region.

Action Items			
Agenda No.	**Action Item(s)/Decisions**	**Owner**	**Target Date**
1.	✓ **None**		
2.	**Katie and Consulting Team Action Items** ▪ Send copies of project information developed so far to Ren. ▪ Send Ren a list of the Tribal Advisory Committee to the State Water Plan 2013 Update and the DWR IRWM Strategic Plan Advisory Committee Tribal Representative. ▪ Invite DWR Tribal Policy Advisor (Anecita Agustinez) to next Tribal meeting (tentatively scheduled for December) ▪ Coordinate with participants in next Tribal meeting to determine if having the Sierra Native Alliance present their recently funded projects in the adjacent CABY region would be desirable. ▪ Send meeting notes to Ren and to all Tribes currently on the distribution list. Ren	Katie Burdick	ASAP

Action Items			
Agenda No.	**Action Item(s)/Decisions**	**Owner**	**Target Date**
	▪ Send meeting notes to Ren and to all Tribes currently on the distribution list		
3.	**None**		
4.	Ren requested that Tribal meetings be organized for Tribal members only. ▪ Meet with Tribal Councils as requested, following outreach by Ren and/or Dawn		

What is Integrated Regional Water Management (IRWM)?

Integrated Regional Water Management (IRWM) Planning began in 2002 as the result of the passage by California voters of Proposition 50, followed by passage of Proposition 84 in 2006. The bonds, among other priorities, authorized the expenditure of several billion dollars in general obligation bonds to fund a variety of water and watershed-related projects. The funding of water improvement and supply projects was specifically tied to the creation of plans by regionally focused groups, which were to take into account water supply, water quality and water-related environmental considerations. These plans became known as Integrated Regional Water Management Plans (IRWMP).

IRWM is aimed at securing long-term water supply reliability within California by first recognizing the inter-connectivity of water supplies and the environment, and then pursuing projects yielding multiple benefits for water supplies, water quality, and natural resources. IRWM is characterized as a collaborative effort to manage all aspects of water resources in a region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

Yuba IRWMP Update

History of the Yuba IRWMP

The Yuba IRWM is a collaborative planning effort that adopted their first Integrated Regional Water Management Plan (IRWMP) in 2008. Diverse stakeholder involvement was a priority from the beginning, and the preparation of the initial IRWMP included participation by a variety of interests representing water supply, conservation, recreation, agriculture, and community interests, as well as federal and local government.

The IRWM governance group, known as the Regional Water Management Group (RWMG), acts as a vehicle to bring project-related implementation funding into the Yuba region. The RWMG also brings stakeholders together to identify water management priorities and develop projects to meet those priorities. Priorities already identified by the group are: water quality (maintaining and restoring), water quantity (for both people and the environment), and environmental quality (restoration and preservation).

What are options for Tribal involvement?

- Participation in developing the revised content for the Yuba IRWMP document
- Integration of Tribal concerns and methodologies into the design of nontribal IRWMP projects (especially projects which relate to natural resources).
- Facilitation of Tribal collaboration with Yuba region project sponsors to integrate Tribal concerns and issues into project design
- Development of projects directly with Tribes, Tribal members and Tribal entities which will result in benefits either directly to the Tribe or to natural resources important to the Tribe.
- Active pursuit of funding in support of these projects

DRAFT

Flood Control • Water Supply • Fishery Enhancement • Recreation • Hydro Electric Generation

November 12, 2014

To: Tribes and Individuals with Tribal Interests

Subject: Tribal Participation in the Integrated Regional Water Management (IRWM) Process, Yuba County, California.

In a letter dated October 2, 2013, the Yuba County Water Agency (YCWA) provided you with information regarding a contract YCWA has signed with the State of California (State) to act as grantee for the Yuba County portion of the Integrated Regional Water Management (IRWM) program in California.

The IRWM program is the result of Proposition 50, which was passed by voters in 2002 to serve as one of the primary vehicles for water-related planning and project funding in California. IRWM is aimed at securing long-term water supply reliability within California by first recognizing the inter-connectivity of water supplies and the environment, and then pursuing projects benefiting water supplies, water quality, and natural resources. This state-wide process has resulted in the identification of over 45 IRWM planning areas in California, including the Yuba County region, and will be implemented through Integrated Regional Water Management Plans (IRWMP) being developed by regionally focused groups.

The Yuba County IRWMP is being developed by a collaborative planning effort by a variety of diverse stakeholders that comprise the state-mandated Regional Water Management Group (RWMG), of which YCWA is a member. The RWMG adopted their first plan in 2008 and is currently working to update the IRWM Yuba County plan. As part of this process, two meetings were held on October 16, 2013 and October 30, 2013 to provide information regarding the IRWM, and to seek tribal comments, concerns, and information.

By way of this letter, YCWA once again requests your comments and concerns regarding the plan to ensure that tribal interests are taken into account. To accomplish this, the Draft IRWMP will be posted for public comment on the internet at www.yubairwmp.org. It will be available for a minimum of 60 days, beginning on November 10, 2014 and concluding on January 10, 2015. No confidential or sensitive information will be included in the posted plan. The Draft Plan was revised based on all comments received on the initial draft plan sections through August 2014.

To better assist in your review of the Draft Plan, please find an overview of the IRWM and the IRWM Plan in Attachment 1. The attachment also details opportunities for tribal input and engagement in this process. Additionally, it should be noted that the IRWM process has two primary components: 1) development of the IRWM Plan, which identifies key water management issues and objectives, and further identifies projects to address those issues, and 2)

Main Office: 1220 F Street • Marysville, CA 95901-4740 • 530.741.5000 • *Fax:* 530.741.6541
Colgate Power House: 12700 Lake Francis Road • P.O. Box 176 • Dobbins, CA 95935-0176 • 530.740.7000 • *Fax:* 530.740.7101
www.ycwa.com

providing the opportunity for concerned stakeholders to gather and discuss water management issues over time. It is our intention that this planning effort will eventually result in significant state funding for locally identified water resources-related projects.

YCWA and the RWMG welcome your involvement in the IRWM process and invite your comments on the Draft Plan. Please provide written comments, concerns, or recommendations on the IRWM Plan within 60-days of the November 10, 2014 posting of the document. Written comments should be mailed to Katie Burdick with Burdick & Company at the following address:

Burdick & Company
Attn: Katie Burdick
1545 Shirland Tract
Auburn, CA 95603
katie@burdico.net

Please contact Katie at the address above, by telephone at 530-823-1310, or by email at katie@burdico.net if you would like to: get a copy of the posted materials sent to you directly on a disc or as a hard-copy, explore ways in which you can be involved in this IRWMP update, make your water supply/water quality/watershed stewardship projects eligible for funding, or to ensure that tribal resources, concerns or recommendations are integrated into projects that are being developed under this plan.

Thank you for your assistance.

Sincerely,

Curt Aikens

Curt Aikens
General Manager
Yuba County Water Agency
530-741-6278 x115

Enclosure (1)

DISTRIBUTION LIST

Nevada City Rancheria Richard Johnson, Chair P.O. Box 825 Nevada City, CA 95959	**Washoe Tribe of Nevada and California** Darrel Kizer 919 US Hwy 395 South Gardnerville, NV 89410
Tsi Akim Maidu Don Ryberg, Chair PO Box 1316 Colfax, CA 95713	**United Auburn Indian Community** David Keyser, Chair 10720 Indian Hill Rd Auburn, CA 95603
Concow Maidu Tribe of Mooretown Rancheria Guy Taylor, Director Feather Falls Casino 1 Alverda Dr. Oroville, CA 95966	**Greenville Rancheria Tribe of Maidu Indians** Kyle Self, Chair PO Box 279 410 Main Street Greenville, CA 95947
Mechoopda Indian Tribe of Chico Rancheria Dennis Ramirez, Chair 125 Mission Ranch Road Chico, CA 95926	**Shingle Springs Rancheria** Nicholas Fonseca, Chair PO Box 1340 Shingle Springs, CA 95682
Tyme Maidu Tribe of Berry Creek Rancheria Jim Edwards, Chairperson 5 Tyme Way Oroville, CA 95966	**Pakan-Yani Band of Strawberry Valley Rancheria** Cathy Bishop, Chairperson 1540 Strader Avenue Sacramento, CA 95815
Maidu/Miwok Jill Harvey 117999 McCourtney Road\ Grass Valley, CA 95949-9759	**Nisenan/Maidu** April Moore 19630 Placer Hills Road Colfax, CA 95713-9617
Enterprise Rancheria of Maidu Indians Glenda Nelson, Chairperson 1940 Feather River Blvd, Suite B Oroville, CA 95965	**Maidu Nation** Claire LeCompte P.O. Box 204 Susanville, CA 96130
Tyme Maidu Tribe of Berry Creek Rancheria Jim Edwards, Chairperson 5 Tyme Way Oroville, CA 95966	**Maidu Cultural and Development Group** Warren Gorbet, Chairperson P.O. Box 426 Greenville, CA 95947-0426
Colfax-Todd Valley Consolidated Tribe Lavina Suehead, Chairperson P.O. Box 4884 Auburn, CA 95604-4884	**Susanville Indian Rancheria** Stacy Dixon, Tribal Chairman P.O. Box U/745 Joaquin Street Susanville, CA 96130
Tyrone Gorre One River Medicine 1700 Meadow Vista Rd Meadow Vista, CA 95722	**Tsi Akim** Bill Jacobson 17069 Vintage Drive Grass Valley, CA 95949

ATTACHMENT 1

WHAT IS INTEGRATED REGIONAL WATER MANAGEMENT (IRWM)?

Integrated Regional Water Management (IRWM) Planning began in 2002, as the result of the passage of Proposition 50 by California voters. Prop 50 authorized the expenditure of $3.4 billion in general obligation bonds to fund a variety of water and wetlands projects. The funding was specifically tied to the creation of plans by regionally focused groups, directed by program-related guidelines to take into account water supply, water quality and water-related environmental considerations. These plans became known as Integrated Regional Water Management Plans or IRWMPs. The California Department of Water Resources (DWR) administers the IRWM program.

IRWM is aimed at securing long-term water supply reliability within California by first recognizing the inter-connectivity of water supplies and the environment, and then pursuing projects yielding multiple benefits for water supplies, water quality, and natural resources. IRWM is characterized as a collaborative effort to manage all aspects of water resources in a region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups (known collectively as the Regional Water Management Group [RWMG]); and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

WHAT IS AN IRWMP?

According to DWR, an IRWMP is a comprehensive planning document to encourage regional strategies for management of water resources.

An IRWMP identifies a broad spectrum of management strategies, the benefits of integrating water management strategies, and priorities for implementing projects and programs. An IRWMP is a comprehensive planning document to encourage regional strategies for management of water resources. The IRWMP identifies projects which can be implemented to meet the goals and objectives articulated in the Plan. To be eligible for DWR implementation funds, a project must have been evaluated by regional stakeholders during preparation of the IRWMP.

At a minimum, an IRWMP will:

- Describe the major water-related objectives and conflicts within a region;
- Consider a broad variety of water management strategies (to include, for example: ecosystem restoration, water supply reliability, flood management, groundwater management, recreation and public access, storm water capture and management, water conservation, water quality protection and improvement, water recycling, conjunctive use, desalination);
- Identify an appropriate mix of water demand and supply management alternatives, water quality protections, and environmental stewardship actions to provide long-term, reliable, and high quality water supply and to protect the environment;
- Identify disadvantaged communities in the region and take the water-related needs of those communities into consideration;
- Consider greenhouse gas emissions of identified programs and projects; and
- Evaluate the vulnerability to climate change/weather variability of water management systems in the region.

OPTIONS FOR TRIBAL INVOLVEMENT

The options for Tribal Involvement are many. The options shown below are those which have already been identified by the RWMG. A review by Tribal members may identify additional options for involvement as well.

- Participate in the meetings of the Regional Water Management Group (RWMG) by having a designated representative of your tribal entity attend. The RWMG is the group responsible for revisions to the Plan, approving projects for inclusion in the Plan and deciding on which projects go forward for funding applications.
- Develop projects for inclusion in the Plan to address Tribal water issues: water quality, water supply, and watershed stewardship. Projects can address ground or surface water and can range from simple infrastructure improvements (such as leak detection and repair, replacement of aging distribution pipes, replacement of leaking valves and pumps, etc.) to more complex treatment infrastructure such as treatment plant repairs/upgrades, restoration of creeks or wetlands, and reducing greenhouse gas emissions by installing solar power of water treatment and pumping facilities.
- Working with other stakeholders in the region to integrate traditional practices into project design and implementation.

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5723

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Don Ryberg
Street, Apt. No.; or PO Box No.: PO Box 1316
City, State, ZIP+4: Colfax, CA 95713

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5766

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Darrel Kizer
Street, Apt. No.; or PO Box No.: 919 US Hwy 395 South
City, State, ZIP+4: Gardnerville, NV 89410

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5759

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Richard Johnson Nevada City Rancheria
Street, Apt. No.; or PO Box No.: 641 South Auburn Street
City, State, ZIP+4: Grass Valley, CA 95945

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5916

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Stacy Dixon
Street, Apt. No.; or PO Box No.: 745 Joaquin St.
City, State, ZIP+4: Susanville, CA 96130

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5834

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Jim Edwards
Street, Apt. No.; or PO Box No.: 5 Tyme Way
City, State, ZIP+4: Oroville, CA 95966

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5827

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Nicholas Fonseca
Street, Apt. No.; or PO Box No.: PO Box 1340
City, State, ZIP+4: Shingle Springs, CA 95682

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5803

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Kyle Self
Street, Apt. No.; or PO Box No.: 1405 Monterey Rd.
City, State, ZIP+4: Red Bluff, CA 96080

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5780

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Gene Whitehouse
Street, Apt. No.; or PO Box No.: 10720 Indian Hill Rd.
City, State, ZIP+4: Auburn, CA 95603

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5858

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Jill Harvey
Street, Apt. No.; or PO Box No.: 117999 McCartney Rd.
City, State, ZIP+4: Grass Valley, CA 95949

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5841

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV 13 2014 SACRAMENTO CA 95833

Sent To: Cathy Bishop
Street, Apt. No.; or PO Box No.: PO Box 667
City, State, ZIP+4: Marysville, CA 95901

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5810

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA NOV 13 2014 SACRAMENTO CA

Sent To: Dennis Ramirez
Street, Apt. No.; or PO Box No.: 125 Mission Ranch Rd
City, State, ZIP+4: Chico, CA 95926

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

7013 1710 0000 9663 5797

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here: USPS CONTRACT STA #4 NOV SACRAMENTO CA 95833

Sent To: Gary Archeleta
Street, Apt. No.; or PO Box No.: 1 Alverda Dr.
City, State, ZIP+4: Oroville, CA 95966

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

7013 1710 0000 9663 5896

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here
USPS CONTRACT STA #4 NOV 10 2014 SACRAMENTO CA 95833

Sent To Pamela Cubbler
Street, Apt. No.; or PO Box No. PO Box 4863
City, State, ZIP+4 Auburn, CA 95604

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

7013 1710 0000 9663 5902

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here
USPS CONTRACT STA #4 NOV 10 2014 SACRAMENTO CA 95833

Sent To William Harrison
Street, Apt. No.; or PO Box No. PO Box 426
City, State, ZIP+4 Greenville, CA 95947

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

7013 1710 0000 9663 5872

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here
USPS CONTRACT STA #4 NOV 10 2014 SACRAMENTO CA 95833

Sent To Glenda Nelson
Street, Apt. No.; or PO Box No. 2133 Monte Vista Ave.
City, State, ZIP+4 Oroville, CA 95966

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

7013 1710 0000 9663 5865

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here
USPS CONTRACT STA #4 NOV 10 2014 SACRAMENTO CA 95833

Sent To April Moore
Street, Apt. No.; or PO Box No. 19630 Placer Hills Rd.
City, State, ZIP+4 Colfax, CA 95713

PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

7013 1710 0000 9663 5889

Postage	$ 0.98
Certified Fee	3.30
Return Receipt Fee (Endorsement Required)	2.70
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.98

Postmark Here
USPS CONTRACT STA #4 NOV 10 2014 SACRAMENTO CA 95833

Sent To Claire LeCompte
Street, Apt. No.; or PO Box No. PO Box 204
City, State, ZIP+4 Susanville, CA 96130

PS Form 3800, August 2006 See Reverse for Instructions

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635810
Date: Friday, November 14, 2014 10:48:17 AM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635810

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	CHICO, CA 95926	November 14, 2014 10:24 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635797
Date: Friday, November 14, 2014 11:17:40 AM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635797

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	OROVILLE, CA 95966	November 14, 2014 10:54 am
Out for Delivery	OROVILLE, CA 95965	November 14, 2014 8:40 am
Sorting Complete	OROVILLE, CA 95965	November 14, 2014 8:30 am
Arrived at Unit	OROVILLE, CA 95965	November 14, 2014 8:04 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 3:03 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 10:35 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635872
Date: Friday, November 14, 2014 11:42:05 AM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635872

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	OROVILLE, CA 95966	November 14, 2014 10:47 am
Sorting Complete	OROVILLE, CA 95965	November 14, 2014 10:43 am
Arrived at Unit	OROVILLE, CA 95965	November 14, 2014 8:36 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635759
Date: Friday, November 14, 2014 12:42:39 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635759

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	GRASS VALLEY, CA 95945	November 14, 2014 12:31 pm
Arrived at Unit	GRASS VALLEY, CA 95945	November 14, 2014 8:47 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635780
Date: Friday, November 14, 2014 2:04:09 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635780

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	AUBURN, CA 95603	November 14, 2014 1:47 pm
Out for Delivery	AUBURN, CA 95603	November 14, 2014 10:01 am
Sorting Complete	AUBURN, CA 95603	November 14, 2014 9:51 am
Arrived at Unit	AUBURN, CA 95603	November 14, 2014 8:59 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 8:31 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635834
Date: Friday, November 14, 2014 4:01:50 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635834

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	OROVILLE, CA 95966	November 14, 2014 1:25 pm
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635841
Date: Friday, November 14, 2014 5:22:27 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635841

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Available for Pickup	MARYSVILLE, CA 95901	November 14, 2014 9:02 am
Out for Delivery	MARYSVILLE, CA 95901	November 14, 2014 7:51 am
Sorting Complete	MARYSVILLE, CA 95901	November 14, 2014 7:41 am
Arrived at Unit	MARYSVILLE, CA 95901	November 14, 2014 7:41 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635773
Date: Saturday, November 15, 2014 10:22:16 AM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635773

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Available for Pickup	COLFAX, CA 95713	November 15, 2014 6:27 am
Out for Delivery	COLFAX, CA 95713	November 14, 2014 9:34 am
Sorting Complete	COLFAX, CA 95713	November 14, 2014 9:24 am
Arrived at Unit	COLFAX, CA 95713	November 14, 2014 9:12 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635865
Date: Saturday, November 15, 2014 3:09:27 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635865

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	COLFAX, CA 95713	November 15, 2014 2:49 pm
Out for Delivery	COLFAX, CA 95713	November 15, 2014 10:27 am
Sorting Complete	COLFAX, CA 95713	November 15, 2014 10:17 am
Arrived at Unit	COLFAX, CA 95713	November 15, 2014 10:09 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 10:35 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635827
Date: Monday, November 17, 2014 1:05:50 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635827

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	SHINGLE SPRINGS, CA 95682	November 17, 2014 9:32 am
Available for Pickup	SHINGLE SPRINGS, CA 95682	November 14, 2014 11:59 am
Available for Pickup	SHINGLE SPRINGS, CA 95682	November 14, 2014 11:54 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635902
Date: Monday, November 17, 2014 4:32:22 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635902

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	GREENVILLE, CA 95947	November 17, 2014 1:00 pm
Available for Pickup	GREENVILLE, CA 95947	November 14, 2014 11:37 am
Arrived at Unit	GREENVILLE, CA 95947	November 14, 2014 11:32 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 14, 2014 1:47 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635919
Date: Monday, November 17, 2014 6:22:43 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635919

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	SUSANVILLE, CA 96130	November 17, 2014 11:40 am
Business Closed	SUSANVILLE, CA 96130	November 15, 2014 8:33 am
Arrived at Unit	SUSANVILLE, CA 96130	November 15, 2014 8:30 am
Departed USPS Facility	RENO, NV 89510	November 15, 2014 1:46 am
Arrived at USPS Facility	RENO, NV 89510	November 14, 2014 7:06 pm
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635803
Date: Monday, November 17, 2014 7:00:00 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635803

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	RED BLUFF, CA 96080	November 17, 2014 2:09 pm
Arrived at Unit	RED BLUFF, CA 96080	November 17, 2014 5:26 am
Departed USPS Facility	REDDING, CA 96049	November 16, 2014 4:30 am
Arrived at USPS Facility	REDDING, CA 96049	November 14, 2014 10:55 pm
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635858
Date: Tuesday, November 18, 2014 2:13:43 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635858

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	GRASS VALLEY, CA 95949	November 18, 2014 1:45 pm
Arrived at Unit	GRASS VALLEY, CA 95945	November 18, 2014 9:12 am
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 18, 2014 2:31 am
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 17, 2014 9:02 am
Departed USPS Facility	SANTA ANA, CA 92799	November 16, 2014 7:45 am
Arrived at USPS Facility	SANTA ANA, CA 92799	November 15, 2014 2:40 pm
Departed USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 11:11 pm
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

Appendix 5-2

English Customer Service USPS Mobile Register / Sign In

USPS.COM

USPS Tracking™

Customer Service ›
Have questions? We're here to help.

Tracking Number: 70131710000096635766

Product & Tracking Information

Postal Product:

Features:
Certified Mail™

DATE & TIME	STATUS OF ITEM	LOCATION
November 17, 2014 , 12:05 pm	**Delivered**	**GARDNERVILLE, NV 89410**
Your item was delivered at 12:05 pm on November 17, 2014 in GARDNERVILLE, NV 89410.		
November 15, 2014 , 12:22 pm	Departed USPS Facility	REDDING, CA 96049
November 15, 2014 , 6:03 am	Arrived at USPS Facility	REDDING, CA 96049

Available Actions

Text Updates

Email Updates

Return Receipt After Mailing

Track Another Package

Tracking (or receipt) number

Track It

HELPFUL LINKS
Contact Us
Site Index
FAQs

ON ABOUT.USPS.COM
About USPS Home
Newsroom
USPS Service Updates
Forms & Publications
Government Services
Careers

OTHER USPS SITES
Business Customer Gateway
Postal Inspectors
Inspector General
Postal Explorer
National Postal Museum
Resources for Developers

LEGAL INFORMATION
Privacy Policy
Terms of Use
FOIA
No FEAR Act EEO Data

Copyright © 2014 USPS. All Rights Reserved.

Search or Enter a Tracking Number

From: US_Postal_Service@usps.com
To: Palmer, Jacare
Subject: USPS Shipment Info for 70131710000096635889
Date: Monday, November 24, 2014 4:01:40 PM

This is a post-only message. Please do not respond.

Jacare Palmer has requested that you receive a USPS Tracking™ update, as shown below.

USPS Tracking™ e-mail update information provided by the U.S. Postal Service.

Label Number: 70131710000096635889

Service Type: Certified Mail™

Shipment Activity	Location	Date & Time
Delivered	SACRAMENTO, CA 95833	November 24, 2014 10:32 am
Departed USPS Facility	RENO, NV 89510	November 15, 2014 1:46 am
Arrived at USPS Facility	RENO, NV 89510	November 14, 2014 7:06 pm
Arrived at USPS Facility	WEST SACRAMENTO, CA 95799	November 13, 2014 8:39 pm

Reminder: USPS Tracking™ by email

Date of email request: November 14, 2014

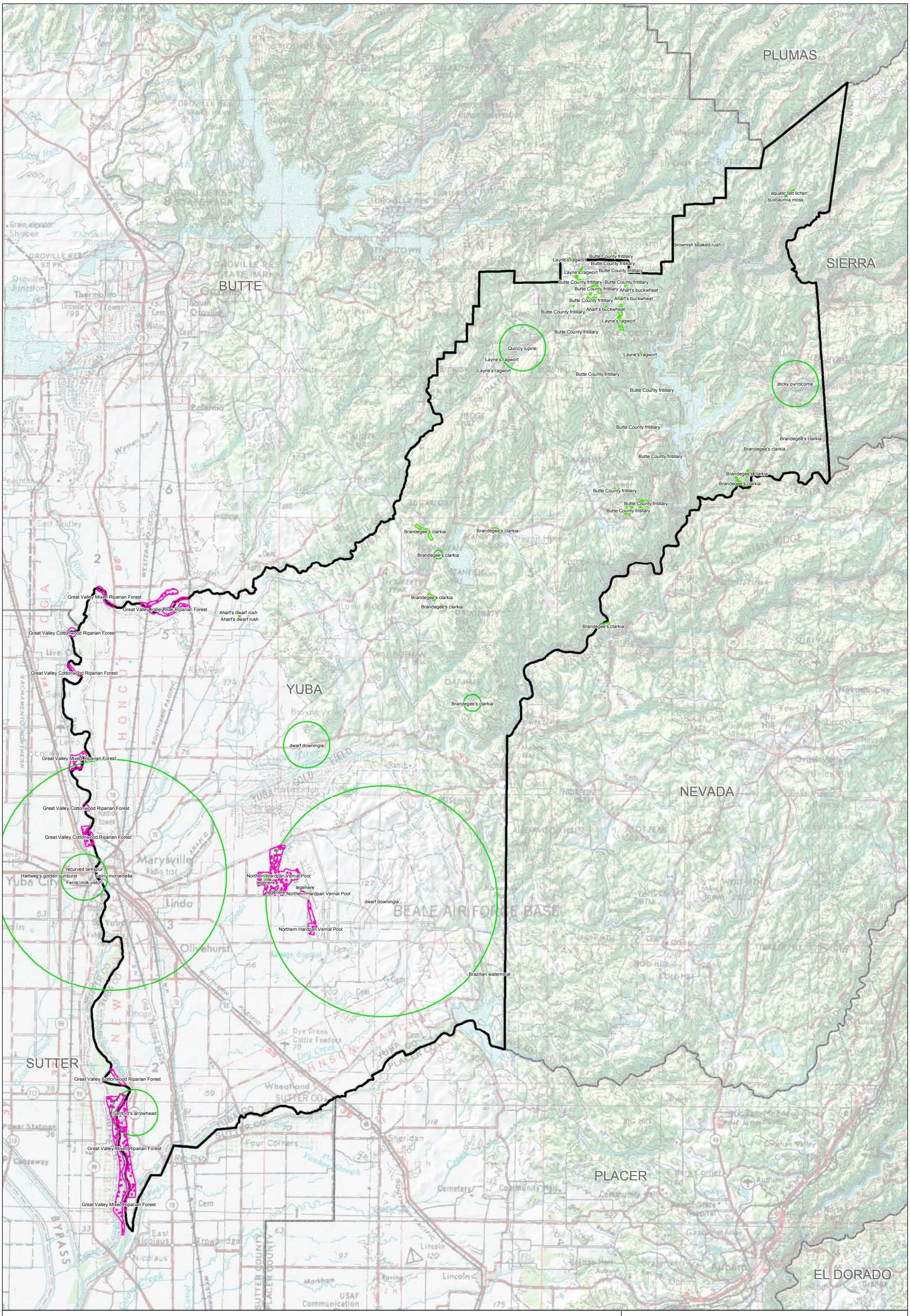
Future activity will continue to be emailed for up to 2 weeks from the Date of Request shown above. If you need to initiate the USPS Tracking™ by email process again at the end of the 2 weeks, please do so at the USPS Tracking™ web site at http://www.usps.com/shipping/trackandconfirm.htm

Results provided by the U.S. Postal Service.

Want to Track on the go?
You can track your packages using USPS Text Tracking™ by texting your tracking number to 28777 (2USPS™) or selecting the Text Update option on our USPS Tracking™ site.
For more information go to https://www.usps.com/text-tracking/welcome.htm

Yuba County IRWMP | 2015 UPDATE

APPENDIX 6-1
MAPS - Plants, Critical Habitat, Wildlife
from
California Natural Diversity Database



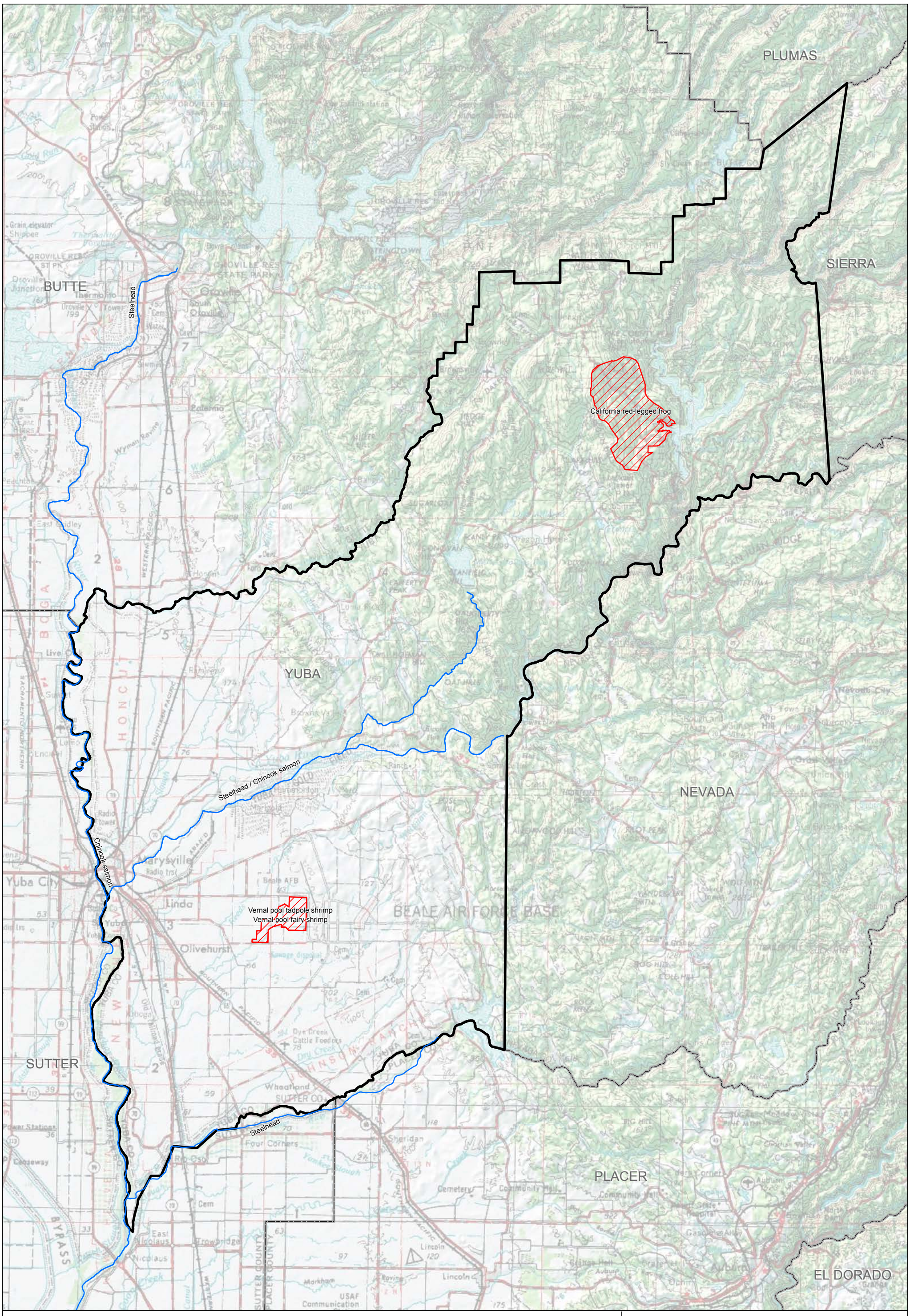
Map Date: 03/06/14
Data Source: CDFW,
California Natural Diversity Database
Map Base: USA Topo Maps

N
W E
S

0 2 4 8 Miles

CNDDB - Plant

Yuba County, CA



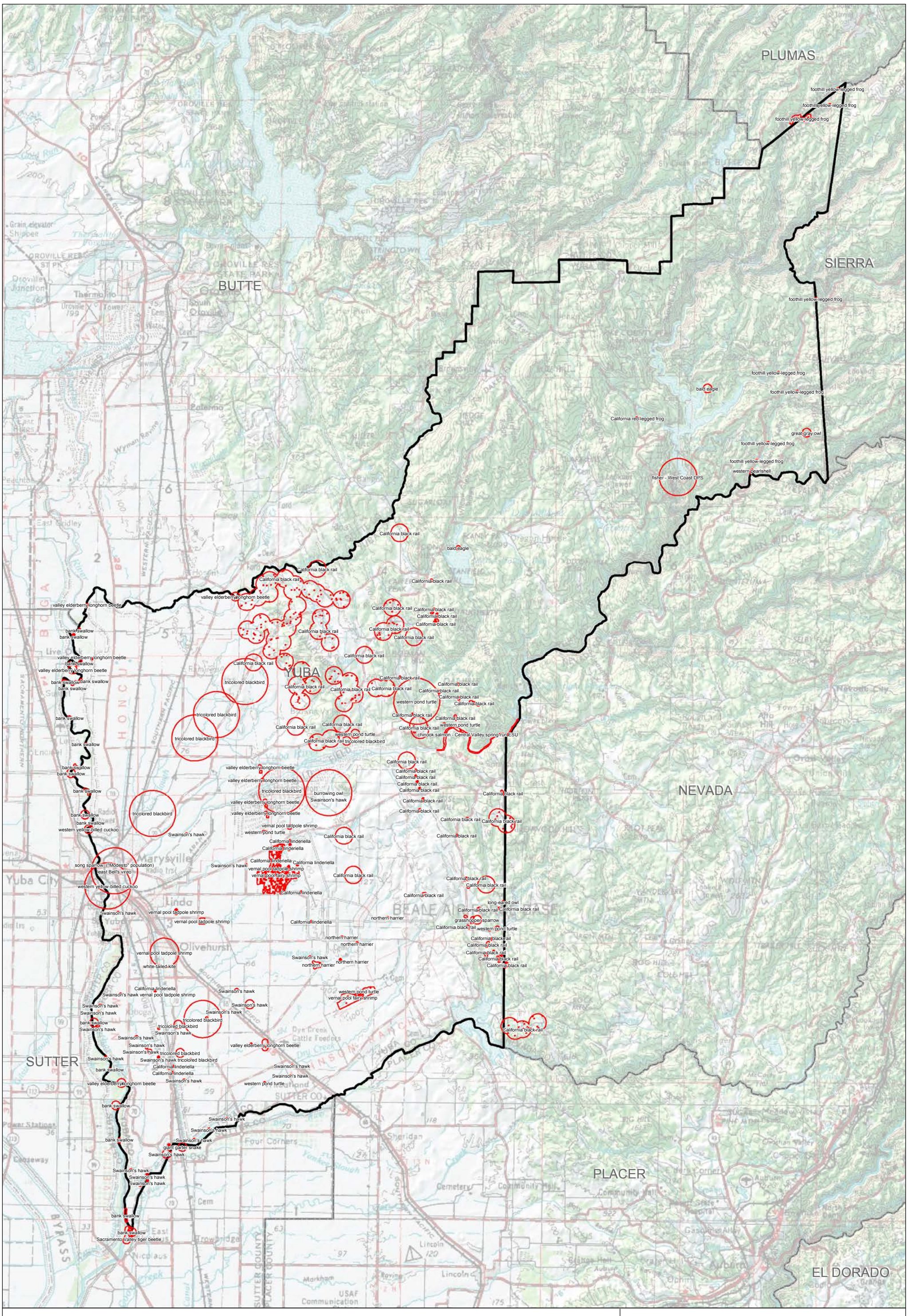
Map Date: 03/06/14
Data Source: USFWS
Map Base: USA Topo Maps

N
W E
S

0 2 4 8 Miles

Critical Habitat

Yuba County, CA



Map Date: 03/06/14
Data Source: CDFW,
California Natural Diversity Database
Map Base: USA Topo Maps

N
W E
S

0 2 4 8
Miles

CNDDB - Wildlife

Yuba County, CA

APPENDIX 6-2
Plant and Wildlife List
California Natural Diversity Database

SNAME	CNAME	KQUADNAME	KEYCOUNTY	PRESENCE
PLANT				
Eriogonum umbellatum var. ahartii	Ahart's buckwheat	Challenge	YUB	Presumed Extant
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Loma Rica	YUB	Presumed Extant
Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Oregon House	YUB	Presumed Extant
Wolffia brasiliensis	Brazilian watermeal	Camp Far West	YUB	Presumed Extant
Rhynchospora capitellata	brownish beaked-rush	Clipper Mills	YUB	Presumed Extant
Fritillaria eastwoodiae	Butte County fritillary	Clipper Mills	YUB	Presumed Extant
Buxbaumia viridis	buxbaumia moss	Strawberry Valley	YUB	Presumed Extant
Downingia pusilla	dwarf downingia	Browns Valley	YUB	Presumed Extant
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Yuba City	SUT	Presumed Extant
Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	Gridley	YUB	Presumed Extant
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	Yuba City	SUT	Presumed Extant
Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	Honcut	BUT	Presumed Extant
Pseudobahia bahiifolia	Hartweg's golden sunburst	Yuba City	YUB	Extirpated
Packera layneae	Layne's ragwort	Clipper Mills	YUB	Presumed Extant
Legenere limosa	legenere	Browns Valley	YUB	Presumed Extant
Fissidens pauperculus	minute pocket moss	Challenge	YUB	Presumed Extant
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	Wheatland	YUB	Presumed Extant
Lupinus dalesiae	Quincy lupine	Rackerby	YUB	Presumed Extant
Delphinium recurvatum	recurved larkspur	Yuba City	SUT	Presumed Extant
Sagittaria sanfordii	Sanford's arrowhead	Nicolaus	YUB	Presumed Extant
Pyrrocoma lucida	sticky pyrrocoma	Camptonville	YUB	Presumed Extant
Monardella venosa	veiny monardella	Yuba City	YUB	Possibly Extirpated
Peltigera gowardii	western waterfan lichen	Strawberry Valley	YUB	Presumed Extant
WILDLIFE				
Haliaeetus leucocephalus	bald eagle	Camptonville	YUB	Presumed Extant
Riparia riparia	bank swallow	Olivehurst	YUB	Presumed Extant
Athene cunicularia	burrowing owl	Browns Valley	YUB	Presumed Extant
Laterallus jamaicensis coturniculus	California black rail	Smartville	YUB	Presumed Extant
Linderiella occidentalis	California linderiella	Browns Valley	YUB	Presumed Extant
Rana draytonii	California red-legged frog	Challenge	YUB	Presumed Extant
Oncorhynchus tshawytscha	chinook salmon - Central Valley spring-run ESU	Smartville	YUB	Presumed Extant
Pekania pennanti	fisher - West Coast DPS	Challenge	YUB	Presumed Extant
Rana boylii	foothill yellow-legged frog	American House	YUB	Presumed Extant
Thamnophis gigas	giant garter snake	Nicolaus	SUT	Presumed Extant
Ammodramus savannarum	grasshopper sparrow	Camp Far West	YUB	Presumed Extant

OCCTYPE	OCCRANK	SENSITIVE	FEDLIST	CALLIST	GRANK	SRANK	RPLANTRANK
Natural/Native occurrence	B	N	None	None	G5T2	S2	1B.2
Natural/Native occurrence	B	N	None	None	G2T1	S1	1B.2
Natural/Native occurrence	U	N	None	None	G4G5T4	S4	4.2
Natural/Native occurrence	U	N	None	None	G5	S1	2B.3
Natural/Native occurrence	B	N	None	None	G5	S1	2B.2
Natural/Native occurrence	D	N	None	None	G3Q	S3	3.2
Natural/Native occurrence	U	N	None	None	G4G5	S2	2B.2
Natural/Native occurrence	U	N	None	None	GU	S2	2B.2
Natural/Native occurrence	U	N	None	None	G2T1	S1	1B.1
Natural/Native occurrence	U	N	None	None	G2	S2.1	
Natural/Native occurrence	B	N	None	None	G2	S2.2	
Natural/Native occurrence	B	N	None	None	G1	S1.1	
Natural/Native occurrence	X	N	Endangered	Endangered	G2	S2	1B.1
Natural/Native occurrence	B	N	Threatened	Rare	G2	S2	1B.2
Natural/Native occurrence	A	N	None	None	G2	S2	1B.1
Natural/Native occurrence	B	N	None	None	G3?	S1	1B.2
Natural/Native occurrence	U	N	None	None	G3	S3.1	
Natural/Native occurrence	U	N	None	None	G3	S3	4.2
Natural/Native occurrence	U	N	None	None	G3	S3	1B.2
Natural/Native occurrence	U	N	None	None	G3	S3	1B.2
Natural/Native occurrence	U	N	None	None	G3	S3	1B.2
Natural/Native occurrence	X	N	None	None	G1	S1	1B.1
Natural/Native occurrence	U	N	None	None	G3G4	S3	4.2
Natural/Native occurrence	B	N	Delisted	Endangered	G5	S2	
Natural/Native occurrence	U	N	None	Threatened	G5	S2S3	
Natural/Native occurrence	U	N	None	None	G4	S3	
Natural/Native occurrence	U	N	None	Threatened	G4T1	S1	
Natural/Native occurrence	U	N	None	None	G2G3	S2S3	
Natural/Native occurrence	C	N	Threatened	None	G2G3	S2S3	
Natural/Native occurrence	D	N	Threatened	Threatened	G5	S1	
Natural/Native occurrence	U	N	Candidate	Candidate Threatened	G5T2T3Q	S2S3	
Natural/Native occurrence	U	N	None	None	G3	S2S3	
Natural/Native occurrence	U	N	Threatened	Threatened	G2	S2	
Natural/Native occurrence	C	N	None	None	G5	S2	

Strix nebulosa	great gray owl	Camptonville	YUB	Presumed Extant
Lasiurus cinereus	hoary bat	Oregon House	YUB	Presumed Extant
Vireo bellii pusillus	least Bell's vireo	Yuba City	YUB	Presumed Extant
Asio otus	long-eared owl	Smartville	NEV	Presumed Extant
Circus cyaneus	northern harrier	Wheatland	YUB	Presumed Extant
Cicindela hirticollis abrupta	Sacramento Valley tiger beetle	Nicolaus	SUT	Extirpated
Melospiza melodia	song sparrow ("Modesto" population)	Yuba City	YUB	Presumed Extant
Oncorhynchus mykiss irideus	steelhead - Central Valley DPS	Oroville	BUT	Presumed Extant
Buteo swainsoni	Swainson's hawk	Browns Valley	YUB	Presumed Extant
Buteo swainsoni	Swainson's hawk	Loma Rica	BUT	Presumed Extant
Agelaius tricolor	tricolored blackbird	Olivehurst	YUB	Presumed Extant
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Wheatland	YUB	Presumed Extant
Branchinecta lynchi	vernal pool fairy shrimp	Browns Valley	YUB	Presumed Extant
Lepidurus packardi	vernal pool tadpole shrimp	Browns Valley	YUB	Presumed Extant
Margaritifera falcata	western pearlshell	Camptonville	YUB	Presumed Extant
Emys marmorata	western pond turtle	Oregon House	YUB	Presumed Extant
Lasiurus blossevillii	western red bat	Oregon House	YUB	Presumed Extant
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Yuba City	YUB	Presumed Extant
Elanus leucurus	white-tailed kite	Olivehurst	YUB	Presumed Extant
Myotis yumanensis	Yuma myotis	Oregon House	YUB	Presumed Extant

Natural/Native occurrence	C	N	None	Endangered	G5	S1
Natural/Native occurrence	B	N	None	None	G5	S4?
Natural/Native occurrence	U	N	Endangered	Endangered	G5T2	S2
Natural/Native occurrence	A	N	None	None	G5	S3?
Natural/Native occurrence	B	N	None	None	G5	S3
Natural/Native occurrence	X	N	None	None	G5TH	SH
Natural/Native occurrence	U	N	None	None	G5	S3?
Natural/Native occurrence	U	N	Threatened	None	G5T2Q	S2
Natural/Native occurrence	U	N	None	Threatened	G5	S3
Natural/Native occurrence	U	N	None	Threatened	G5	S3
Natural/Native occurrence	U	N	None	None	G2G3	S1S2
Natural/Native occurrence	U	N	Threatened	None	G3T2	S2
Natural/Native occurrence	B	N	Threatened	None	G3	S2S3
Natural/Native occurrence	U	N	Endangered	None	G3	S2S3
Natural/Native occurrence	U	N	None	None	G4G5	S1S2
Natural/Native occurrence	U	N	None	None	G3G4	S3
Natural/Native occurrence	B	N	None	None	G5	S3?
Natural/Native occurrence	U	N	Proposed Threatened	Endangered	G5T3Q	S1
Natural/Native occurrence	A	N	None	None	G5	S3
Natural/Native occurrence	B	N	None	None	G5	S4?

Yuba County IRWMP | 2015 UPDATE

APPENDIX 10-1

General Plan Relation to IRWMP

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Community Development Element	
Goal CD11: Quality of Life and Local Advantages *Provide a high quality of life and take advantage of the County's economic and natural assets in order to attract employment.*	
Policy CD11.2	The County will focus its economic development efforts on businesses and other employers that thrive on particular local advantages, such as: [. . .] excellent water quality and plentiful supply.
Goal CD12: Level of Services: Public Services and Facilities *Ensure high quality public services, infrastructure, and facilities with adequate capacity to meet the needs of Yuba County's existing and future residents, businesses, industries, and employers.*	
Policy CD12.1	New developments will be required to demonstrate the availability of adequate water supply and infrastructure, including during multiple dry years, prior to approval.
Policy CD12.3	The County will implement stormwater master plans designed to provide collection, detention, and conveyance consistent with local standards for developed areas within the Valley Growth Boundary. In general, new developments will be required to demonstrate new net increase in stormwater runoff prior to approval.
Goal CD13: Phasing and Locale of Development *Phasing and location of development that promotes efficient public infrastructure and services.*	
Policy CD13.1	Growth should be phased from developed areas and existing infrastructure outward in a logical, efficient manner, and in a way that avoids premature conversion of agricultural lands, changes in rural character, and unnecessary loss of other land-based natural resources.
Policy CD13.2	The County will not induce growth by supporting the provision of services or infrastructure in areas that are not planned for development.
Policy CD13.3	Unincorporated County development between present and 2030 will be focused within the Valley Growth Boundary and Rural Communities.
Goal CD14: Coordinated Public Services, Regional Services *Provide coordinated public service and infrastructure planning.*	
Policy CD14.1	The County will support regional electricity, water, wastewater, water conservation, and other agreements, where cost-effective and environmentally sustainable.
Policy CD14.3	The County will support an orderly framework for communication with Wheatland, Marysville, Beale Air Force Base, LAFCO, service providers, SACOG, Sutter County, and other regional service providers and agencies.
Policy CD14.4	The County will coordinate with special districts, cities, LAFCO, SACOG, Caltrans, joint powers authorities, and other relevant agencies to provide efficient local and regional infrastructure, public facilities, and public services.
Policy CD14.9	The County will support agreements with Marysville and Wheatland that promote mutual goals for fiscal sustainability, growth management, review of spheres of influence, transportation planning, agricultural preservation, emergency access and response, flood protection, renewable energy development, regional infrastructure provision, and other important planning and environmental issues, consistent with the General Plan.
Policy CD14.10	The County will support agreement with Marysville and Wheatland on appropriate building standards, public utility connections, sewer and water and service, and other matters that promote cost-effective development of unincorporated areas within the Valley Growth Boundary and viability for future incorporations.
Policy CD14.12	The County will coordinate with Yuba County Water Agency on conjunctive water use, renewable energy generation and use, and other agreements that would provide advantages to local industries and benefits to existing residences and businesses.

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy CD14.14	The County will coordinate with reclamation districts, special districts, and Caltrans for maintenance and improvement of storm drainage facilities, where appropriate.
Goal CD15: Smart Infrastructure, Facilities, and Services *Cost-effective, efficient, and environmentally responsible public infrastructure, facilities, and services.*	
Policy CD15.1	Infrastructure and facilities constructed to meet demand within unincorporated County areas should be located and designed to minimize adverse impacts related to habitats for special-status species, floodplains, farmlands, cultural resources, and watershed areas.
Policy CD15.5	New developments should incorporate water conservation techniques to reduce water demand, including the use of reclaimed water for landscaping and irrigation.
Policy CD15.6	New developments (public and private) should use Low Impact Development, Natural Drainage Systems, and other best management practices that reduce the rate of runoff, filter out pollutants, and facilitate groundwater infiltration.
Policy CD15.7	County and reclamation district drainage fees should be structured to provide incentives for use of Low Impact Development and natural drainage approaches that slow down, disperse, and filter stormwater runoff.
	Action CD15.2 The County will continue its already substantial efforts to implement the Yuba County Stormwater Management Plan and South Yuba Drainage Master Plan. The County will pursue funding to improve drainage facilities [. . .] in existing developed portions of Linda and Olivehurst. [. . .] The County will consider the feasibility of a "reverse drainage fee" that provides funding to projects that convert surface parking areas, roadways, and other impervious surfaces to park space, natural drainage swales, and other drainage features that could detain stormwater, filter runoff, and provide other benefits. It is anticipated that this incentive would be consistent with a fair-share assessment of the cost of providing drainage services in the surrounding area during implementation of the General Plan.
Public Health and Safety Element	
Goal HS-1: Flood Protection *Reduce risk for the County's people and property*.	
Policy HS1.1	The County will not approve new housing that would have a finished floor within the 100-year floodplain, as defined by the Federal Emergency Management System.
Policy HS1.2	For areas under the jurisdiction of the Central Valley Flood Protection Board, the County will not approve new developments within a flood hazard area or an area of moderate flood hazard without demonstrating adequate flood protection according to Government Code Sections 68865.5, 65962, and 66474.5.
Policy HS1.3	The County may allow non-residential improvements within the 100-year floodplain so long as the proposed improvements do not: ▪ increase flood heights or velocities; ▪ inhibit emergency access; ▪ create excessive costs in providing governmental services during or after flooding; ▪ interfere with existing water flow capacity of the floodway; ▪ substantially increase erosion and/or sedimentation; or ▪ contribute to the deterioration of any watercourse or the quality of water in any waterbody.
Policy HS1.4	Public buildings are discouraged in the 100-year flood zone, but if they are constructed, they should be flood-proofed to a point at or above the base flood-level elevation.
Policy HS1.5	The County will continue to collaborate with the Yuba County Water Agency, local reclamation districts, levee commissions, and US Army Corps of Engineers to improve,

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
	certify, and maintain the levee system that protects developed and planned development areas in Linda and Olivehurst, including the Plumas Lake Specific Plan Area. Urban areas in Yuba County should have a 200-year flood protection or greater.
Policy HS1.6	The County will prohibit construction near levees that would adversely affect the integrity of the subject levee or would impede maintenance, inspection, or planned levee expansion.
Policy HS1.7	The County will use the best available flood hazard information and mapping from regional, state, and federal agencies to inform land use, zoning, and public facility investment decisions.
Policy HS1.8	The County will update its policies and standards, if necessary, to remain consistent with state and federal standards for floodplains, levee design criteria, and urban development in areas subject to flooding during General Plan buildout.
Policy HS1.9	New developments shall evaluate potential flood hazards and demonstrate compliance with state and federal flood standards prior to approval.
Policy HS1.10	New developments shall provide drainage improvements according to County standards.
Policy HS1.11	Natural waterways should be protected from unnecessary alteration whenever flood protection structures or other forms of construction are proposed.
	Action HS 1.1: General Plan and Zoning Updates The County will monitor maps issued by the State Department of Water Resources and the Federal Emergency Management Agency and will amend the General Plan, as necessary, to ensure compliance with state and federal standards for development in flood areas. The County will communicate with staff from the Central Valley Flood Protection Board to ensure that local policies and standards are consistent with state law and regulations. The County will amend the Public Health & Safety Element and Community Development Element, if necessary, to ensure adequate flood protection is provided in areas anticipated for urban development or to provide demonstration of adequate progress toward the requisite level of flood protection. Policies and actions in the General Plan related to flood protection will integrate data from the State Plan of Flood Control. For flood-related revisions to the Public Health and Safety Element, the County will consult with the Central Valley Flood Protection Board and local flood protection agencies serving the County. Following flood-related updates to the General Plan, the County will, if necessary, amend applicable development standards, including the Zoning Ordinance, Subdivision Ordinance, improvement standards, and other codes to ensure consistency with flood protection policies. Subdivision approvals, development agreements, permits, and other County and special district approvals should incorporate amended flood policies and regulations. *Action HS 1.2: Flood Emergency Plan* The County will collaborate with the Cities of Wheatland and Marysville to develop a flood emergency plan, consistent with the adopted Central Valley Flood Protection Plan. The flood emergency plan should also be consistent with local hazard mitigation plans and the local flood protection planning.
Goal HS3: Water Quality *Preserve, protect, and improve the quality of regional water supplies*	
Policy HS3.2	County and regional water supply providers should monitor and proactively address water quality problems, with a focus on achieving and maintaining adequate water quality for "beneficial uses" of area waterways identified in the Yuba County Integrated Regional Water Management Plan. "Beneficial uses" in Yuba County include municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy HS3.3	The County will regulate new developments, as necessary, and collaborate with irrigation districts to address Regional Water Quality Control Board requirements intended to protect agricultural use and sustain the agricultural economy.
Policy HS3.4	New developments shall be designed to control surface runoff discharges, in compliance with the permit requirements and the receiving water limitations administered by the Regional Water Quality Control Board.
Policy HS3.5	The County will cooperate with local, state, and federal agencies to remediate issues related to groundwater contamination and increases in total dissolved solids.
Policy HS3.6	New developments shall comply with streambed alteration standards and shall be designed to avoid harmful discharge that would substantially affect wetland and riparian areas.
Policy HS3.7	Valley Neighborhoods, Employment Village areas, Commercial Mixed Use areas, and Employment areas should have coordinated drainage master planning and avoid a site-by-site approach to detention and drainage. Drainage master planning should implement an area-wide approach that incorporates existing and constructed swales for conveyance and planned open space and parkland for detention.
Policy HS3.14	The County will encourage the preservation, creation, or restoration of riparian corridors, wetlands, open space buffers, and other types of open space that provide water quality benefits.
	Action HS3.1 [. . .] The County, in collaboration with regional water supply providers, will conduct ongoing monitoring to ensure the application and effectiveness of construction and environmental policies and standards. Ongoing monitoring would be designed to identify problems that may require corrective actions. The County will collaborate with regional and state agencies on the need for corrective actions for ongoing uses that pollute the County's water supply.
Goal HS5: Greenhouse Gas Emissions and Climate Change *Provide greenhouse gas efficient development patterns and successfully adapt to future changes in Yuba County's climate*	
Policy HS5.10	The County should collaborate with Marysville, Wheatland, and other local and state agencies to identify risks posed by climate change and implement appropriate adaptation strategies.
Natural Resources Element	
Open Space Designations	
Critical Habitat	To provide habitat for rare, threatened, and endangered species located in Yuba County. Although certain recreational and other public uses may be consistent with the intent to provide for natural habitat, the County anticipates that these lands would remain mostly undeveloped. Critical Habitat includes areas designated by the US Fish & Wildlife Service for vernal pool species and California red-legged frog and critical habitat designed by the California Department of Fish & Game. The US Fish & Wildlife Service also identifies Critical Habitat along segments of the County's streams and rivers for use by steelhead and Chinook salmon. These habitat areas are covered under the designation "Water and Groundwater Recharge Areas," described below.
Water and Groundwater Recharge Areas	To protect water quality and habitat associated with rivers, lakes, reservoirs, and streams. Recreational uses and public access are appropriate along the County's waterways, so long as the design and use does not substantially and adversely affect groundwater recharge, scenic views, cultural or biological resources, or natural habitat.
Goal NR1 *High quality, accessible public recreational open space*	

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy NR1.5	New developments shall provide for open space corridors consistent with the County's Parks Master Plan, and as needed to provide naturalized drainage and bike/pedestrian connections to nearby neighborhoods and destinations.
Policy NR1.11	Recreational open space along rivers and streams should incorporate flood control objectives, habitat preservation, and habitat restoration, as appropriate.
Policy NR1.16	Natural and recreational open space areas should be provided along the Feather River, the Yuba River and Gold Fields, federal- and state-owned lands, and other river channels, river corridors, and reservoirs, in collaboration with relevant agencies and willing property owners.
Goal NR2 *Improve Yuba County's urban areas and environment through the development of green public spaces.*	
Policy NR2.1	The County will encourage urban greening projects that are designed to: ▪ improve air and water quality; ▪ protect natural resources; [. . .] and ▪ adapt to future climate conditions.
Goal NR3 Farmland *Provide for long-term, vibrant local agricultural operations.*	
Policy NR3.15	The County will support efforts to agree on a region in the Yuba-Sutter area among counties and cities to protect local agricultural resources and the local agricultural economic base.
Goal NR5 Biological Resources *Protect and restore habitat for special-status species that have the potential to occur in Yuba County.*	
Policy NR5.2	The County will coordinate its environmental review and mitigation requirements with the Yuba Sutter NCCP/HCP, once adopted.
Policy NR5.5	The County will support cooperative restoration, development, and promotion of natural resources with the US Fish and Wildlife Service, the US Army Corps of Engineers, the Bureau of Reclamation, the US Forest Service, and other public agencies with an interest in Yuba County's water and wildlife assets.
Policy NR5.6	The County will seek funding to enhance and restore habitat along the Yuba River, in coordination with development of recreational facilities and public access.
Policy NR5.7	New developments and public investments near Yuba County's streams and rivers shall be designed to avoid tree removal, erosion, or other modifications that would adversely affect salmonid habitat.
Policy NR5.8	New private developments adjacent to riparian areas shall provide a buffer designed and maintained to preserve existing wildlife habitat; provide habitat conditions favorable to native local wildlife; restrict activities that may adversely affect wildlife habitat quality; and restore degraded habitat, where feasible.
Policy NR5.9	New developments shall be designed to avoid the loss of jurisdictional wetlands. If loss is unavoidable, the County will require applicants to mitigate the loss on a "no net loss" basis through a combination of avoidance, minimization, restoration, and/or constructed wetlands, in accordance with federal and state laws.
	Action NR5.3 Wetlands and Riparian Buffers Through review of proposed private and public projects near wetlands and riparian areas, the County will require buffering to protect these important habitats. Setbacks are expected to range from 33 to 150 feet in width. Where stream courses are contained within levees, as in the case of the Bear, Feather, and Yuba Rivers, required setbacks shall be measured from the edge of the active floodway. Setbacks will be included as a part of conditions of approval for proposed projects. The depth of the setback shall be determined based upon site-specific conditions and

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
	communication with the appropriate trustee and responsible agencies, such as the California Department of Fish & Game, the US Army Corps of Engineers, and the US Fish & Wildlife Service. Depending on the vegetation type, ongoing management of buffers may be necessary to address invasive species, human disturbance, and to sustain habitat and water quality functions. *Action NR5.5 Yuba River Recreation & Wildlife Enhancement Plan* The County will coordinate with the City of Marysville, local citizen groups, the Bureau of Land Management, the Yuba County Water Agency, and local mining companies to prepare and implement a Recreation and Wildlife Enhancement Plan for the Yuba River. The County will appoint a staff person to coordinate and oversee this planning effort. The Plan will be designed to develop public access, recreational opportunities, cultural amenities, and other appropriate uses, while restoring and conserving important habitat along the Yuba River.
Goal NR12 Water Supply *Reduce water consumption and ensure reliable water supply in normal years and during times of drought.*	
Policy NR12.1	For new developments, the County will manage land use change in a way that reduces the potential for overdraft of groundwater supplies, recognizes overlying groundwater rights and surface water rights, and helps to ensure that the combined use of surface and groundwater resources provides for current and future water demand.
Policy NR12.2	Large new developments shall coordinate with the relevant service provider to demonstrate availability of water to the satisfaction of the County prior to approval, according to the requirements of the California Water Code Section 10631. Large developments are generally those with more than 500 dwelling units or employing more than 1,000 people, but shall be defined according to the details in Section 10912 of the California Water Code.
Policy NR12.3	New developments are strongly discouraged in areas with high groundwater infiltration rates and the County's development standards will restrict the amount of impervious surface that can be added in these areas in the context of new developments.
Policy NR12.4	The County will encourage the use of recycled water and water from irrigation districts that is not treated to urban standards for outdoor irrigation, toilet flushing, fire hydrants, commercial and industrial processes, carwashes, concrete batching, laundromats, dust control, parks, golf courses and other landscaped areas, and other appropriate water-intensive uses.
Policy NR12.5	New developments shall use climate appropriate landscaping in parks and open space, landscaping within new rights-of-way, yards, and other appropriate spaces, to the maximum extent feasible.
Policy NR12.6	New developments shall include water conservation technologies, such as low-flow toilets, efficient clothes washers, and efficient water-using industrial equipment, in accordance with state law.
Policy NR12.7	Projects and plans that include recycled water systems, rainwater collection and use, climate appropriate landscaping, smaller lawns, and other water-conserving measures beyond that required by state law should enjoy proportionally lower development impact fees.
Policy NR12.8	Proposed residential property subdivisions that would create lots of one acre or less shall be served by a public water system meeting all state requirements for potable water supply and a public sewer system designed in compliance with County standards.
Policy NR12.9	New developments proposing individual wells within rural communities shall demonstrate an adequate supply of water without adverse impact to groundwater through testing, hydrological studies, or other means approved by the County.
Policy NR12.10	Prior to issuing a building permit for a habitable structure, the County will require demonstration of minimum flow rates prior to approval. The County may require

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
	demonstration of storage capacity for systems that produce low flows, pursuant to County standards.
Policy NR12.11	Any new water wells drilled within existing County watercourses shall be set back from waterbodies such that the stream hydrology is not directly impacted.
Policy NR12.12	The County will support the Federal Energy Regulatory Commission relicensing of the Yuba River Development Project.
City of Marysville General Plan (August 1985)	
Open Space, Conservation, and Recreation Element	
Goal To designate, protect, and conserve the natural resources, open space, and recreation lands in the city; and provide opportunities for recreation activities to meet citizen needs.	
Policies for Outdoor Recreation	
Policy 1	To preserve the lakes as major open space areas within the city and continue to improve the recreational uses surrounding the lakes and the aesthetics of the shorelines.
Policy 2	To encourage compatible recreational uses in floodplains of the Feather and Yuba Rivers.
Policy 4	To promote the maximum provision of recreational open space in future residential areas.
Policy 5	To provide for the maximum use of public open space by the use of such areas for outdoor recreation.
Policies for Conservation and Preservation of Resources	
Policy 1	To encourage the preservation of wildlife habitat areas.
Policy 2	To protect the fisheries of adjacent waterways.
Policy 4	To ensure that existing natural resource areas, scenic areas, open space areas, and parks are protected from encroachment or destruction by development.
Policy 7	To work with Yuba County to identify and protect aquifer recharge areas.
Policy 8	To permit open space and conservation land use within floodplains.
Policy 9	To eliminate such uses in the floodplain where continued use would pose a danger to public health, safety, or welfare.
Policy 10	To take proper steps to assure that floodplains, waterways, groundwater recharge areas, and areas with a high water table will not be polluted or contaminated.
Community Safety and Seismic Safety Element	
Goal To minimize the danger of natural and manmade hazards and to protect residents and visitors from the danger of earthquakes, fire, flood, or other disaster.	
Policy 2	To require engineering analysis of new development proposals in areas within possible soil instability, flooding, earthquake faults, or other hazards, and prohibit development in high danger areas.
Policy 4	To prohibit residential and commercial development below 100-year flood levels.
Policy 5	To prohibit development along stream channels that would reduce stream capacity, increase erosion, or cause deterioration of the channel.
City of Wheatland General Plan (July 2006)	
Land Use Element	
Goal 1.A To grow in an orderly pattern consistent with economic, social, and environmental needs, while preserving Wheatland's small town character, and historic significance.	
Policy 1.A.7	The City shall manage urban growth in areas with hazardous conditions such as flooding and unstable soils.
Goal 1.H To maintain land as Urban Reserve for consideration for future development.	

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy 1.H.2	The City shall, when deemed necessary, consider the appropriateness of development of Urban Reserve lands based on the following factors: [. . .] c. Flooding and drainage implications. [. . .] e. Availability of water supply. [. . .] g. Effect on and compatibility with existing City infrastructure (e.g., wastewater treatment plant). [. . .] i. Potential impacts on sensitive biological resources.
Public Facilities and Services Element	
Goal 5.A To ensure the timely development of public facilities and services, the maintenance of specified service levels for public facilities, and that adopted facility and service standards are achieved and maintained through the use of equitable funding methods.	
Policy 5.A.2	The City shall ensure through the development review process that adequate public facilities and services are available to serve new development. The City shall not approve new development where existing facilities are inadequate unless the following two conditions are met: a. The applicant can demonstrate that all necessary public facilities will be installed or adequately financed (through fees or other means). b. The facility improvements are consistent with applicable master or facility plans adopted by the City.
Policy 5.A.4	The City shall prepare and annually review public facility master plans, and every five years update the plans to ensure compliance with appropriate state and federal laws, use of modern and cost-effective technologies, and compatibility with current land use policy.
Policy 5.A.7	The City shall continue to use developer fees, the City's public facilities fees, and other methods (i.e., grant funding and assessment districts) to finance public facility design, construction, operation, and maintenance.
Policy 5.A.8	The City shall ensure through the development review process that public facilities and infrastructure are designed and constructed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for future replacement to achieve upsizing.
Policy 5.A.10	The City shall require that new development pay its fair share of the cost of providing new public services and/or the costs of upgrading of all existing facilities it uses, based on the demand for these facilities attributable to the new development.
	Implementation Programs: *Program 5.1* The City shall prepare, annually review, and update every five years a Water Master Plan, Wastewater Master Plan, and Storm Drainage Master Plan. *Program 5.3* The City shall prepare and periodically update a Stormwater Management Plan.
Goal 5.C To ensure a safe and reliable water supply sufficient to meet the future needs of the city.	
Policy 5.C.1	The City shall protect the groundwater basin from overdraft from city use of groundwater. To this end, the City shall study, working closely with other public and private entities as deemed appropriate, the safe yield of the groundwater basin. Water management programs such as conjunctive use and recharge programs will also be considered. The City shall use this information to determine the most appropriate long-term water supply to serve Wheatland.
Policy 5.C.2	If the results of studies undertaken pursuant to Policy 5.C.1 indicate an imbalance between safe groundwater yield and projected water requirements, the City shall develop a response plan to address the imbalance. This response plan will include an appropriate mix of water conservation measures, reuse, surface water supplements, and other water management techniques.

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy 5.C.3	The City shall promote efficient water use and reduced water demand by: a. requiring water-conserving building design and equipment in new construction; b. encouraging water-conserving landscaping and other conservation measures; and c. encouraging retrofitting of existing development with water-conserving devices.
Policy 5.C.4	The City shall work with other agencies to promote water conservation measures countywide for both urban and agricultural uses.
Policy 5.C.5	The City shall only approve new development that relies on an adequate City water supply and delivery system.
Policy 5.C.6	The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.
Policy 5.C.7	The City shall monitor water demand growth trends to anticipate water supply needs.
Policy 5.C.8	The City shall monitor water quality regularly to ensure that safe drinking water standards are met and maintained in accordance with state and EPA regulations and take necessary measures to prevent contamination.
Policy 5.C.9	The City shall ensure that water supply capacity and infrastructure are in place prior to granting building permits for new development.
Policy 5.C.10	The City shall ensure through the development review process that public facilities and infrastructure are designed to meet ultimate capacity needs, pursuant to a master plan, to avoid the need for future replacement to achieve upsizing.
Goal 5.E To collect and dispose of stormwater in a manner that protects the city's residents and property from the hazards of flooding, manages stormwater in a manner that is safe and environmentally sensitive, and enhances the environment.	
Policy 5.E.1	The City shall prepare a Storm Drainage Master Plan and Flood Protection Master Plan to assure adequate protection for residents and property.
Policy 5.E.2	The City shall prepare a Storm Drainage Master Plan and Flood Protection Master Plan to assure adequate protection for residents and property.
Policy 5.E.3	The City shall prohibit grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of storm drainage facilities.
Policy 5.E.4	The City shall require new development projects to prepare an erosion control plan.
Policy 5.E.5	The City shall require projects that have significant impacts on the quantity and quality of surface water runoff to incorporate mitigation measures for impacts related to urban runoff.
Policy 5.E.6	Future drainage system requirements shall comply with applicable state and federal pollutant discharge requirements.
Policy 5.E.7	The City shall encourage stormwater detention facilities to be designed for multiple purposes, including recreational (e.g., parks, ball fields, etc.) and/or stormwater quality improvement.
Policy 5.E.8	The City shall consider using stormwater of adequate quality to replenish local groundwater basins, restore wetlands and riparian habitat, and irrigate agricultural lands.
Policy 5.E.9	The City shall require detention storage with measured release to ensure that the capacity of downstream creeks and sloughs will not be exceeded. To ensure downstream capacity is not exceeded, the following measures will be applied: a. Outflow to creeks and sloughs shall be monitored and controlled to avoid exceeding downstream channel capacities. b. Storage facilities shall be coordinated and managed to prevent problems caused by timing of storage outflows.
Policy 5.E.10	The City shall require the preparation of watershed drainage plans for proposed developments. These plans shall define needed drainage improvements and estimate construction costs for these improvements.

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
	Implementation Program: *Program 5.9*: The City shall prepare and adopt a Stormwater and Flood Protection Ordinance to implement the updated Storm Drainage and Flood Protection Master Plan to address stormwater runoff and flood protection.
Environmental Resources Element	
Goal 8.A To protect and enhance the natural quantity and qualities of the Wheatland area's rivers, creeks, sloughs, and groundwater.	
Policy 8.A.1	To protect and enhance the natural quantity and qualities of the Wheatland area's rivers, creeks, sloughs, and groundwater.
Policy 8.A.2	The City shall monitor any activities that may degrade the aquifers of Bear River or Dry Creek as it impacts city water supply and shall support the maintenance of high water quality in these water bodies.
Policy 8.A.3	The City shall cooperate with other jurisdictions in jointly studying the potential for using surface water sources to balance the groundwater supply so as to protect against aquifer overdrafts and water quality degradation.
Policy 8.A.4	The City shall help protect groundwater resources from overdraft by promoting water conservation and groundwater recharge efforts.
Policy 8.A.5	The City shall require proposed developments to comply with streambed alteration and watershed protection regulations as administered by the California Department of Fish and Game and regulations adopted by the Environmental Health Department.
Policy 8.A.6	The City shall retain to the extent feasible the environmental and ecological features of the creeks, sloughs, and rivers in their natural state.
Policy 8.A.7	The City shall endeavor to protect, preserve, and improve riparian corridors.
Policy 8.A.8	The City shall require runoff controls in conjunction with development projects and agriculture production to limit toxics and nutrients from entering waterways.
	Implementation Programs: *Program 8.1* The City shall monitor any activities that may degrade the aquifers of Bear River and Dry Creek and affect City water supplies. *Program 8.2* The City's Zoning Ordinance shall be reviewed and amended where appropriate to assure that adequate standards for watershed protection have been adopted.
Goal 8.B To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.	
Policy 8.B.1	The City shall support preservation of the habitats of federal- or state-listed rare, threatened, endangered, and/or other special status species. Federal and state agencies, as well as other resource conservation organizations, shall be encouraged to acquire and manage endangered species' habitats.
Policy 8.B.2	The City shall support and cooperate with efforts of other local, state, and federal agencies and private entities engaged in the preservation and protection of significant biological resources. Significant biological resources include endangered, threatened, or rare species and their habitats, wetland habitats, wildlife migration corridors, and locally important species/communities.
Policy 8.B.3	The City shall support preservation, restoration, and enhancement of the designated habitats of state- or federal-listed rare, threatened, endangered and/or other sensitive and special status species.
Policy 8.B.4	The City shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitat. Where possible and

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
	appropriate, such communities shall be restored or expanded.
Policy 8.B.5	The City shall require careful planning of new development in areas that are known to have particular value for biological resources to maintain sensitive vegetation and wildlife habitat.
Policy 8.B.6	The City shall review development proposals in accordance with applicable federal, state, and local statutes protecting special-status species and jurisdictional wetlands.
Policy 8.B.7	The City shall impose, where appropriate, mitigation measures using protocols defined by the applicable statutes.
Policy 8.B.8	On sites that have the potential to contain critical or sensitive habitats or special species or are within 100 feet of such areas, the City shall require the project applicant to have the site surveyed by a qualified biologist. A report on the findings of this survey shall be submitted to the City as part of the application process.
Policy 8.B.9	The City shall require levee vegetation management be consistent with flood control and reclamation district constraints.
Goal 8.C To preserve and protect the valuable vegetation resources of the Wheatland area.	
Policy 8.C.1	The City shall require developers to use native and compatible Wheatland General Plan Policy Document, Part II 8-5 July 11, 2006 non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of permits or for project mitigation.
Policy 8.C.2	The City shall support the preservation of outstanding areas of natural vegetation, including, but not limited to, oak woodlands and riparian areas.
Policy 8.C.3	The City shall require that new development preserve natural woodlands to the maximum extent possible.
Goal 8.D To preserve and enhance open space lands to maintain the natural resources of the Wheatland area.	
Policy 8.D.1	The City shall support the preservation and enhancement of natural land forms, natural vegetation, and natural resources as open space to the maximum extent feasible.
Policy 8.D.2	The City shall, where appropriate, permanently protect as open space areas of natural resource value, including wetlands, Wheatland General Plan Policy Document, Part II 8-6 July 11, 2006, preserves riparian corridors, woodlands, and floodplains.
Policy 8.D.3	The City shall require that new development be designed and constructed to preserve significant stands of vegetation and any areas of special ecological significance as open space to the maximum extent feasible.
Health and Safety Element	
Goal 9.C To protect the lives and property of the citizens of Wheatland from hazards and manage floodplains for their open space and natural resource values.	
Policy 9.C.1	The City shall continue to implement floodplain zoning and undertake other actions required to comply with state floodplain requirements, and to maintain the City's eligibility under the Federal Flood Insurance Program.
Policy 9.C.2	The City shall require evaluation of potential flood hazards prior to approval of development projects. The City shall require proponents of new development to submit accurate topographic and flow characteristics information.
Policy 9.C.3	The City shall not allow development in areas subject to flooding unless adequate mitigation is provided to include project levees designed for a standard project flood.
Policy 9.C.5	The City shall prohibit the construction of facilities essential for emergencies and large public assembly in the 100-year floodplain, unless the structure and road access are free from flood inundation.

General Plan Goals, Policies, Implementation Measures, and Objectives Relating to Integrated Regional Water Management Planning	
2030 Yuba County General Plan (June 2011)	
Policy 9.C.6	The City shall continue to work closely with the US Army Corps of Engineers, Reclamation Districts 2103 and 817, the Federal Emergency Management Agency (FEMA), and the California Department of Water Resources (DWR) in defining existing and potential flood problem areas and solutions.
Policy 9.C.7	The City shall continue to work closely with the US Army Corps of Engineers, Reclamation Districts 2103 and 817, FEMA, and DWR in defining existing and potential flood problem areas and solutions.
Policy 9.C.8	The City shall formulate emergency management plans for the safe evacuation of people from areas subject to inundation from dam failure. Plans shall be reviewed and periodically updated.
Policy 9.C.10	The City shall require that roadway systems for areas protected from flooding by levees being designed to provide multiple escape routes for residents in the event of a levee failure.
Policy 9.C.11	The City shall develop evacuation routes and a disaster plan in the remote event of a failure to Camp Far West Dam.
Policy 9.C.12	The City shall coordinate with and support the efforts of Reclamation Districts 2103 and 817 to provide flood protection to the new development in the city.
	Implementation Program *Program 9.3* The City shall complete a Flood Protection Master Plan.

Sources: Yuba County General Plan (2011), Marysville General Plan (1985), Wheatland General Plan (2006).

Yuba County IRWMP | 2015 UPDATE

APPENDIX 11-1

Climate Vulnerability Checklist

Yuba County IRWMP Climate Vulnerability Checklist			
Water Demand	Y/N	Vulnerability	High Priority Y/N
Are there industries that require cooling/process water in your planning region?	Yes	Agriculture is the only identified industry requiring cooling and process water. This industry could be impacted by rising utility costs from additional air-conditioning, and eventually by higher power costs if hydropower generation is impacted as projected.	
Does water use vary by more than 50% seasonally in parts of your region?	Yes	Irrigated agriculture is a primary industry in the region; summer water demand can vary by more than 50% in parts of the region. Specifically, Camptonville's demand increases by more than 50% in summer and has had to require water rationing. Summer demand could increase if not offset by agricultural water efficiencies, cropping techniques, and change in crop mix.	
Are crops grown in your region climate sensitive? Would shifts in daily heat patterns, such as how long heat lingers before nighttime cooling, be prohibitive for some crops?	Yes	Walnuts, prunes/dried plums, peaches, kiwis, and almonds are heat-sensitive crops (particularly with regard to number of chilling hours) that can also be susceptible to unseasonable precipitation. Non-irrigated agriculture–grazing and dryland hay–may be the most vulnerable to projected climate changes. However, more frost-free and growing-degree days could benefit some crop production and local agricultural profits, and could affect the current crop mix.	
Do groundwater supplies in your region lack resiliency after drought events?	Yes/Foothills No/Valley	Though small in comparison to Central Valley agricultural demands, Camptonville's water demand (partially supplied by wells) varies by more than 50% during the summer as compared to the winter. Camptonville has faced water shortages during drought conditions; water rationing has been required in the past. Other foothill communities and rural areas affected as well. Valley supplies have lacked resiliency in the past but are remaining stable with introduction of surface water supplies to agriculture. Ultimately, this could be vulnerability if the Yuba basin is overdrawn due to out-of-basin transfers or diversions, climate drying, or shifting state policies that could tax this finite supply.	
Are water use curtailment measures effective in your region?	Yes	Water users are receptive to short-term, low-magnitude water curtailment measures. Receptivity to longer-term and/or greater-magnitude measures is unknown.	
Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?	Under Study	The well-being and life cycles of sensitive aquatic species are complex and identifying their respective instream flow requirements is difficult. The Yuba Accord has brought into force new instream flow requirements in the Lower Yuba River designed to better support aquatic ecosystems. However, concerns have been raised regarding these requirements as well as the lack of updated upper-basin flow requirements, and research is ongoing to best identify where opportunities for improvement may be feasible.	
Water Supply			
Does a portion of the water supply in your region come from snowmelt?	Yes	Runoff from snowmelt is a primary contributor to Yuba River and other surface flows. The runoff season has already been documented to be shifting earlier in the spring	

		from a March-June period to a February-May period. This shift is projected to become even more pronounced as the climate warms and suggests greater uncertainty and altered water facilities management into the future.	
Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?	No		
Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?	No		
Would your region have difficulty storing carryover supply surpluses from year to year?	No	Not in most years. The exception would be following wet years when reservoirs and groundwater basins are at capacity. Browns Valley Irrigation District's Browns Valley Reservoir and other area reservoirs don't have sufficient capacity to carry over surpluses (less than 2 years' capacity).	
Has your region faced drought in the past during which it failed to meet local water demands?	Yes	Some sub-regional areas with limited storage capacity may be the most vulnerable and have failed to meet local water demands, such as the North Yuba and Brown's Valley sub-regions. Minimum instream flows are routinely met in the Yuba River in compliance with the Yuba Accord and FERC license conditions. However, this may become more difficult as warming and drying of the climate is projected to reduce regional surface flows in some streams and future state water regulations and policies are uncertain.	
Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?	No	Water storage and distribution systems are currently unaffected by invasive species; water managers remain vigilant for signs of infestation, but invasive species do exist at boat launch locations. Non-native invasive species within the region are listed in Chapter 6 *Region Description*. Many of these species are expected to be favored by warming and drying conditions.	
Water Quality			
Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby that could pose a water quality concern from increased erosion?	Yes	Up to two-thirds of Yuba County is exposed to increased fire risk from May through October annually; and the fire season has extended in recent years, according to stakeholders. Research has identified high fire hazards in even-aged silvicultural systems (clear-cut conifer plantations) such as those located north and east of New Bullards Bar Reservoir (Stephens and Moghaddas 2005). Increased fire frequency, intensity, and season may impact vegetative species composition, especially the size and extent of old-growth forest habitat and related fauna; threaten critical facilities located in fire-prone areas; and increase chances for human and economic loss due to development in fire-prone areas. Reservoir water	

		quality could be adversely affected by increased erosion post-fire.	
Does part of your region rely on surface waterbodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?	No/Yes	At the current time, most surface waterbodies do not have these water quality issues, although these issues have emerged during drought. However, climate-induced increases in storm intensity and warmer water temperatures/decreased assimilative capacity could produce increased turbidity and algae growth. This could, in turn, decrease water quality and generate the need to filter surface water for micro-irrigation of orchard crops.	
Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies' assimilative capacity?	Yes	In a 2012 study, PG&E examined possible side effects of climate change on runoff by comparing two consecutive 35-year periods (1942-1976 and 1977-2011).[1] The company maintains daily runoff records for 100+ locations in the Sierra, southern Cascade, and Coastal Ranges of California. Trend analyses over a moving 30-year average show reductions in flow on tributaries to the North Yuba in 2009 at between -3% and -28% (Slate Creek). In the South Yuba for the same period, decreases in flow are between 0% and -13% (Lake Spaulding). This would suggest that "low flows are decreasing for some waterbodies." To ameliorate these conditions, the Yuba Accord addresses minimum instream flow requirements below the dams. However, this issue may be further exacerbated in late spring and summer months due to earlier and faster spring snowmelt with rising temperatures. Decreased flows in some waterbodies likely results in a higher concentration of pollutant/reduced assimilative capacity.	
Are there beneficial uses designated for some waterbodies in your region that cannot always be met due to water quality issues?	Yes	Several regional waterbodies are listed as impaired on the CWA 303(d) list. The Lower Yuba River watershed has seven waterbodies (Deer Creek, Englebright Lake, Scotts Flat Reservoir, Yuba River, South Fork Yuba, Middle Fork Yuba, and North Fork Yuba) listed as impaired due to mercury, arsenic, copper, chlorpyrifos, diazinon, and/or temperature. The Lower Bear watershed has six impaired waterbodies (Lake Combie, Lower Bear River, and Camp Far West Reservoir), mostly due to mercury contamination but with secondary contamination from chlorpyrifos and diazinon. The Lower Feather River is 303(d) listed as water quality-impaired from mercury, polychlorinated biphenyls (PCBs), and agricultural chemicals. Water flow to meet the requirements of both anadromous fish and irrigated agriculture is also a management concern. (http://www.sacriver.org/aboutwatershed/roadmap/watersheds/feather) The State of California identified the Bear River and South Fork Yuba River as Priority 1 Impaired Watersheds (RWQCB Basin Plan) requiring restoration to improve water	

[1] Freeman, G. J. *Analyzing the Impact of Climate Change on Monthly River Flows in California's Sierra Nevada and Southern Cascade Mountain Ranges*. Western Snow Conference 2012. Available from: http://www.westernsnowconference.org/sites/westernsnowconference.org/PDFs/2012Freeman.pdf

		quality as a result of the large amounts of mercury. The Lower Feather River is 303(d) listed as water quality-impaired from mercury, polychlorinated biphenyls (PCBs), and agricultural chemicals. Water flow to meet the requirements of both anadromous fish and irrigated agriculture is also a management concern. Overall climate drying and warming could exacerbate elevated water temperatures, a reduced capacity for dilution, potential for eutrophication and Total Organic Carbons related to increased algae presence, sediment and non-point source pollution from more intense storm events and higher peak flows, and the potential for wastewater runoff into receiving waters. Several streams, lakes, and reservoirs in the Yuba County IRWMP region exceed water quality standards for mercury and several species of resident fish exceed safety levels for human consumption due to bioaccumulation of mercury.	
Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?	Yes	Camptonville's water quality suffers during heavy rain events, requiring that the treatment plant be shut down due to turbidity in the surface water source. North Yuba Water District's surface supplies are also compromised by turbidity.	
Sea-Level Rise (Questions not applicable)	N/A		
Flooding			
Does critical infrastructure in your region lie with in the 200-year floodplain?	Yes	Roughly one-third of the county's population lives in the 500-year floodplain, along with emergency evacuation routes, sewer and water treatment plants and other infrastructure, and numerous critical community facilities. At higher elevations, damage to roadways has occurred from landslides and debris flows. Increased storm intensity and severity brought on by climate variation could exacerbate impacts from flooding. The urban communities in the county are in the process of improving their levee systems to meet the state's 200-year Urban Level of Protection standards.	
Does part of your region lie within the Sacramento-San Joaquin Drainage District?	Yes	Yes, Sacramento-San Joaquin Drainage District boundaries are located online at: http://www.cvfpb.ca.gov/ssjdd_maps/	
Does aging critical flood protection infrastructure exist in your region?	Yes	From the Feather River Regional Flood Management Plan (2013): "Broadly stated, the levees that were originally constructed to protect largely agricultural areas are inadequate to protect developing areas. Although the regional flood management system has prevented millions of dollars in flood damages since its construction, a better understanding of the risk assessment and engineering standards has made it clear that some of the regional levee segments face an unacceptably high chance of failure. This, combined with	

		growth in the region, has increased the estimated level of flood risk. While the chance and frequency of flooding has decreased since construction of the region's levees and multipurpose reservoirs, the damages that would occur if a levee were to fail in one of these areas are much greater, resulting in a net long-term increase in cumulative damages if no further action is taken to improve the flood management system or to limit further development in these areas." The urban levee systems are in the process of being upgraded to meet current standards. Studies are underway to determine what repairs should be considered for the rural levees.	
Have flood control facilities (such as impoundment structure) been insufficient in the past?	Yes	Extreme flood events in 1986 and 1997 led to levee failures on the Yuba and Feather Rivers and inundated large areas in the Linda and Olivehurst communities. A levee also failed in 1997 in the Wheatland area, with flooding limited to rural areas. Other levees have experienced distress during flood events, but have been repaired or improved.	
Are wildfires a concern in parts of your region?	Yes	Up to two-thirds of Yuba County is exposed to increased fire risk, normally from May through October annually. However, fire managers have reported fires every month during 2013. Residential development has and is taking place in vegetative communities with historically high-fire-return intervals. Wildfire risk is projected to increase in both frequency and intensity and season under warmer, drier conditions. Research has identified high fire hazards in even-aged silvicultural systems (clear-cut conifer plantations) such as those located north and east of New Bullards Bar.	
Ecosystem and Habitat Vulnerability			
Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?	Yes	Regional wetland and riverine habitats are vulnerable to erosion and subsequent sedimentation, particularly from past mining and timbering practices, and road building.	
Does your region include estuarine habitats that rely on seasonal freshwater flow patterns?	No		
Do climate-sensitive fauna or flora populations live in your region?	Yes	Climate-sensitive include several aquatic and wetland-related species and the full complement of amphibious species. Bird species in the Sierra region already and will continue to experience habitat displacement due to climate variation. The Lower Yuba River Accord resolves various conflicts concerning fishery flow requirements in the Plan area. Species of primary management concern include: ▪ Recreationally or commercially important (fall-run Chinook salmon, steelhead, American shad, and striped bass). ▪ Federal- and/or state-listed species: Chinook salmon–Central Valley spring run. ▪ Species proposed for federal or state listing within the area (steelhead, delta smelt and green sturgeon), and state Species of Special Concern (late fall-run Chinook salmon, green sturgeon, hardhead, longfin smelt, river lamprey, Sacramento perch, Sacramento splittail, and San Joaquin roach).	

		California species of concern that might also be climate sensitive due to their respective dependence on wetland or riparian habitat include: vernal pool fairy shrimp, bald eagle, California red-legged frog, bank swallow, and California black rail.	
Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?	Yes	Climate-sensitive include several aquatic and wetland-related species and the full complement of amphibious species. Bird species in the Sierra region already and will continue to experience habitat displacement due to climate variation. Federally listed Endangered and Threatened species include: vernal pool fairy shrimp (Threatened), vernal pool tadpole shrimp (Endangered), giant garter snake (Threatened), California red-legged frog (Endangered), western yellow-billed cookoo (candidate for federal listing), Valley elderberry long beetle (Threatened)	
Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?	Yes	Recreational floating and tourism are important drivers of the economy; 39 miles of the lower South Yuba River are heavily used by recreationists, and are designated as a California Wild and Scenic River and recommended as a federal Wild and Scenic River. Low flows brought on by warming and drying of the climate may increase competition for adequate flows to support recreational pursuits.	
Are there rivers in your region with quantified environmental flow requirements or known water quality/ quantity stressors to aquatic life?	Yes	The Yuba Accord is being implemented to address these issues in the Yuba River. Several streams, lakes, and reservoirs in the Yuba County IRWMP region exceed water quality standards for mercury and several species of resident fish exceed safety levels for human consumption due to bioaccumulation of mercury	
Do estuaries, coastal dunes, wetlands, marshes or exposed beaches exist in your region?	No		
Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change? (http://www.itsgettinghotoutthere.org/)	Yes	The Sierra Nevada Mountains	
Are there areas of fragmented estuarine, aquatic, or wetland habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?	Yes	Aquatic and wetland habitat has been fragmented both by storage and water-delivery infrastructure, roads and irrigation diversions, and by seasonal low flows. Roads and development have impeded movement corridors for wildlife. Essential Fish Habitat (EFH) is the aquatic habitat necessary for fish to spawn, breed, feed, or grow to maturity that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem. For the Sacramento River watershed, the aquatic areas identified as EFH for Chinook salmon are within the hydrologic unit map numbered 18020112 (upper Sacramento River to Clear Creek). The upstream extent of Pacific salmon EFH in the Yuba River is to Englebright Dam at river mile 23.9 (USACOE 2012).	

		There are 1,324 acres of isolated designated critical habitat for fairy shrimp in vernal pool wetlands located near Beale AFB (USFWS website).	
Hydropower			
Is hydropower a source of electricity in your region?	Yes	YCWA's New Colgate Powerhouse (downstream of New Bullards Bar) provides more energy than any other hydroelectric facility supplying power directly to PG&E. Narrows 1 & 2, Deadwood Creek, and Fish Release also supply hydropower. Reductions in water supply and increases in peak events (drought and floods) could affect hydropower management and reduce generation capabilities.	
Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities, or conditions for hydropower generation in your region?	Yes	Energy needs will likely increase with population and industrial growth and increased need for cooling due to warming of the climate, unless substantial energy conservation takes place. Local entities are considering the potential for small hydroelectric facilities that are exempt from the requirements of the Federal Power Act. There are currently no plans for new large-scale hydroelectric facilities.	

Yuba County IRWMP | 2015 UPDATE

APPENDIX 11-2

Robust Decision Support

Authors: Vishal K. Mehta, Laura Forni, Nicholas Depsky and David Purkey (SEI);
Elizabeth Betancourt (Forsgren Inc)
Date: February 2014

ROBUST DECISION SUPPORT FOR THE YUBA IRWMP

Robust decision support (RDS) applies a participatory framework[1] to integrate the natural, social, and political aspects of water resource management in a quantitative model for Integrated Water Resource Management (IWRM). Water demand across sectors—agriculture, industry, energy, urban, environment—is affected by climate variability and further complicated by social and contractual issues amongst many users of the Yuba. These factors are difficult to integrate because social, political, and economic boundaries often overlap watershed boundaries and other physical delineations critical to water resources systems.

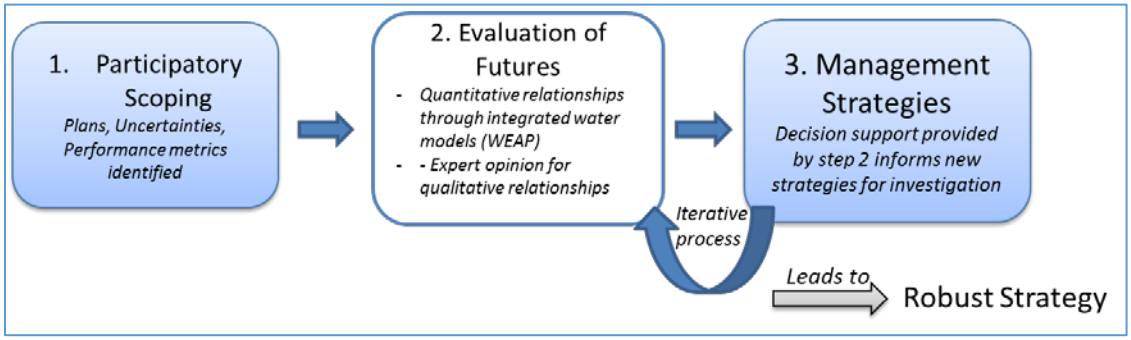
A. Methodology

In brief, the RDS process allows:

- Consideration of many possible futures (an ensemble) rather than a single best estimate;
- Prioritization of strategies that perform well across many possible futures rather than for one particular future; and
- Adaptive strategies for changing conditions.

RDS employs water resources computer models (in this case, using WEAP) and rich visualization of possible futures (in this case, using Tableau). The 3 three steps of RDS are shown in Figure 1 and described in detail below

Figure 1: The Robust Decision Support (RDS) Process



1. Participatory scoping: involves collecting stakeholders' issues of concerns, objectives and management strategies using a formal problem formulation framework called XLRM (Table 1). The XLRM Framework is comprised of:

[1] This approach has been shaped by the academic literature on decision making under deep uncertainty, most significantly by the Robust Decision Making approach described in "Shaping the Next One Hundred Years" by Lempert, Popper and Bankes. 2003. Santa Monica, CA. 187 pp.). RDM is a process rather than a fixed set of practices, and SEI uses the term Robust Decision Support for its rendition of RDM, to emphasize both its own rendition of RDM, as well as the fact that our goal is to support decision-making, not to make decisions for stakeholders.

- X: exogenous factors or uncertainties that are outside the control of water managers;
- L: management responses or levers that can be implemented by water managers;
- R: models that describe the relationships between uncertainties and levers; producing
- M: metrics of performance that can be used to evaluate various management options.

Table 2 shows how well the XLRM framework maps to the IRWMP language.

Table 1: The XLRM Problem formulation table

Exogenous Factors /Uncertainties (X)	Management Levers/Strategies (L)
Uncertain factors that are outside of the control of water managers but which have the potential to impact the decisions being made. *e.g. population change; climate change; new regulation …*	The options under consideration by water managers to improve the performance of a water system under consideration. *e.g. new canals; recycled water, re-operating reservoirs …*
Relationships/Models (R)	**Performance Metrics (M)**
Models that are constructed to capture the relationship between uncertain factors, management strategies, and system performance. *e.g. WEAP Modeling; expert opinion …*	The measures that will be used to evaluate the potential performance of the selected strategies in the face of identified uncertainties. *e.g. flows at specific points; compliance with regulations*

Table 2: Mapping of XLRM to DWR's IRWMP guidelines

Exogenous Factors/Uncertainties (X)	Management Levers/Strategies (L)
Uncertain factors that are outside of the control of water managers but which have the potential to impact the decisions being made. **ISSUES OF CONCERN**	The options under consideration by water managers to improve the performance of a water system under consideration. **RESOURCE MANAGEMENT STRATEGIES/PROJECTS**
Relationships/Models (R)	**Performance Metrics (M)**
Models that are constructed to capture the relationship between uncertain factors, management strategies, and system performance. WEAP MODEL/**REGION DESCRIPTION**	The measures that will be used to evaluate the potential performance of the selected strategies in the face of identified uncertainties. **GOALS AND OBJECTIVES**

Core Working Group

In June 2013, a core working group (CWG) was formed, made up of individuals from the main interest groups involved in the Regional Water Management Group (RWMG). The RDS process, especially the XLRM formulation, is being implemented with the CWG (Table 3). As of February 2014, three XLRM workshops have been conducted:

September 18, 2013: The first RDS workshop covered the overview of RDS and a complete run of each of the XLRM components. Dominant categories of uncertainties (X's) that emerged were climate, regulatory and land use change uncertainties. A limited set of L's (management strategies) and M's (metrics) were also distilled for further deliberation.

November 2013: The second RDS workshop dwelled deeper into climate and regulatory uncertainties. The CWG was asked to identify specific trajectories of these uncertainties that they would like to see integrated within the model.

January 16, 2013: The third RDS workshop covered land and water use.

Table 3: Members of the Core Working Group

Organization:	Contact:	Phone:	Email:	Address:
YCWA	Scott Matyac	530-741-6278 x 117	smatyac@ycwa.com	1220 F Street, Marysville CA, 95901
Browns Valley Irrigation District	Walter Cotter	743-5703	walter@bvid.org	Post Office Box 6, Browns Valley, CA 95918
North Yuba Water District	Jenny Cavalier	692-2564	jcavalier@nywd.org	8691 La Porte Road, Brownsville, CA 95919
City of Wheatland	Dane Schilling	888-9929	dschilling@wheatland.ca.gov	111 C Street, Wheatland, CA 95692
Hallwood Irrigation Company	Mike Filice	701-2087	mfilice@northtreefire.com	Post Office Box 1349, Marysville, CA 95901
Yuba County Community Dev. & Srvcs Agency	Mike Lee	749-5430	mlee@co.yuba.ca.us	915 8th Street, Suite 123 Marysville, CA 95901
South Yuba River Citizens League	Caleb Dardick	530-265-5961 x 207	caleb@syrcl.org	216 Main Street Nevada City, CA 95959

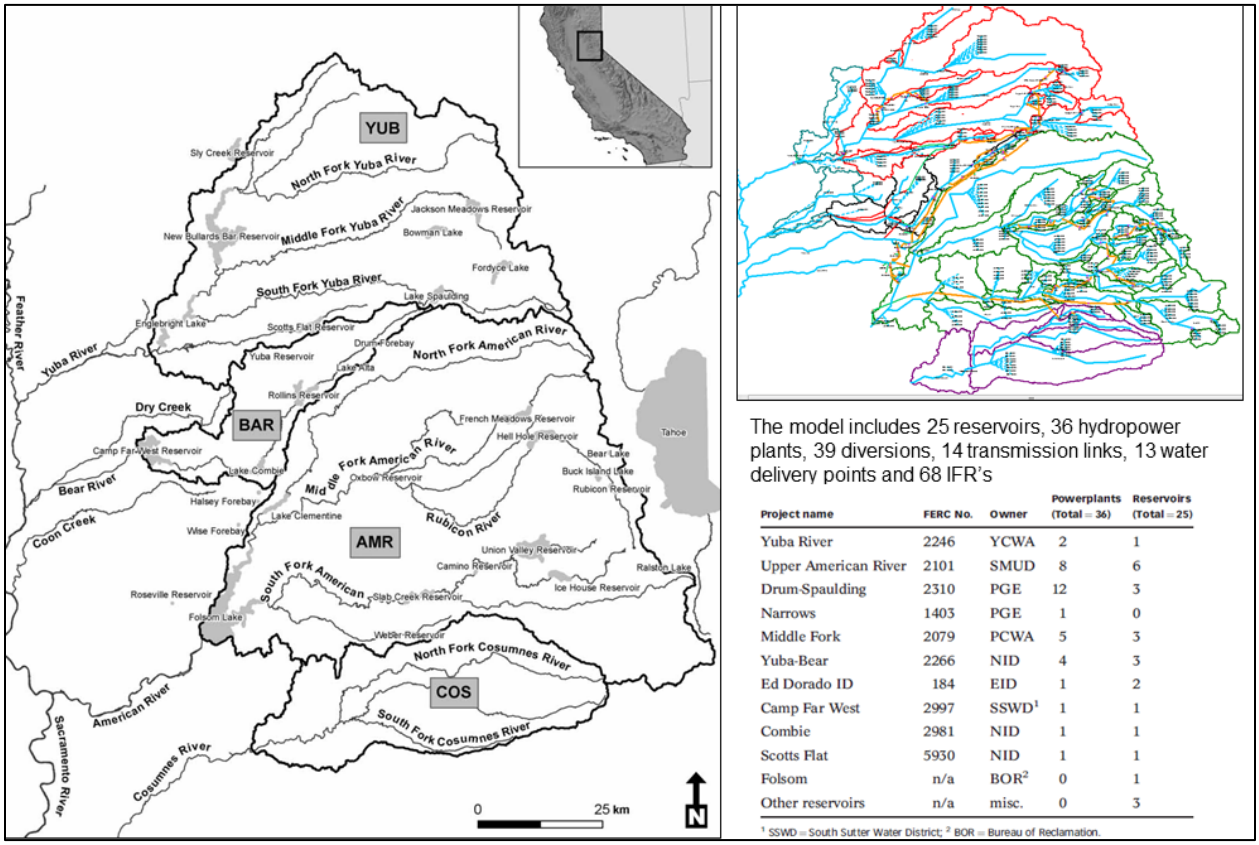
2. Evaluation of vulnerabilities

The vulnerabilities of the Yuba region under current management and under the variety of uncertainties distilled in step 1 are then explored by running an integrated water resources model of the Yuba under an ensemble of scenarios. System vulnerability is then assessed using specific metrics under each of many categories of objectives that are identified in step 1.

The Yuba model

The integrated model that we are building for this purpose tiers off from a published model of the CABY region (see Figure 2 below) built by SEI (Mehta et al. 2011) using the WEAP water resources planning platform (www.weap21.org).

Figure 2: Summary of the CABY model, based on which the Yuba model is being built



The model includes 25 reservoirs, 36 hydropower plants, 39 diversions, 14 transmission links, 13 water delivery points and 68 IFR's

Project name	FERC No.	Owner	Powerplants (Total = 36)	Reservoirs (Total = 25)
Yuba River	2246	YCWA	2	1
Upper American River	2101	SMUD	8	6
Drum-Spaulding	2310	PGE	12	3
Narrows	1403	PGE	1	0
Middle Fork	2079	PCWA	5	3
Yuba-Bear	2266	NID	4	3
Ed Dorado ID	184	EID	1	2
Camp Far West	2997	SSWD[1]	1	1
Combie	2981	NID	1	1
Scotts Flat	5930	NID	1	1
Folsom	n/a	BOR[2]	0	1
Other reservoirs	n/a	misc.	0	3

[1] SSWD = South Sutter Water District; [2] BOR = Bureau of Reclamation.

Key elements of the Yuba model that are being built at the time of writing, and that will be deployed in the final analysis, are extension of the CABY model to the valley floor, representation of agricultural and municipal water demand, and extension of historical climate record to 2012.

3. Identifying robust management strategies

Based on the understanding of vulnerabilities from step 1, the stakeholders come up with possible management strategies they would like to explore that have the potential to overcome the same. These are the L's in the XLRM framework. This answers the question: **How do the projects perform under our chosen suite of uncertain futures? What trade-offs exist amongst different management strategies in the face of all identified uncertainties?** Robust strategies are those that perform consistently well under the most number of uncertainties, based on the measures of success identified in step 1.

B. An example

This section illustrates a limited RDS experiment that was conducted using the information from the first RDS workshop (in September 2013) and presented at the Oct 16th, 2013 RWMG meeting. The intention

was to demonstrate what the entire workflow looked like, at a limited scale, and it was very well received.

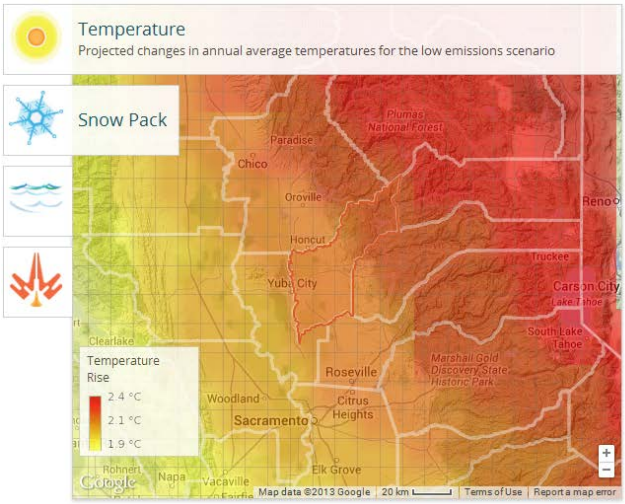
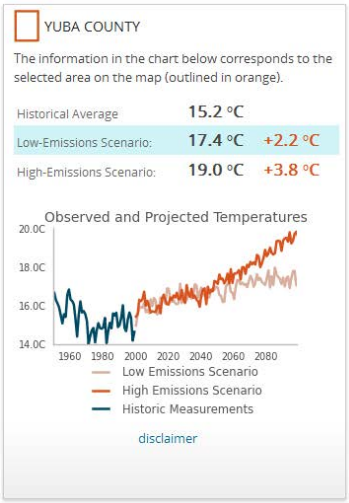
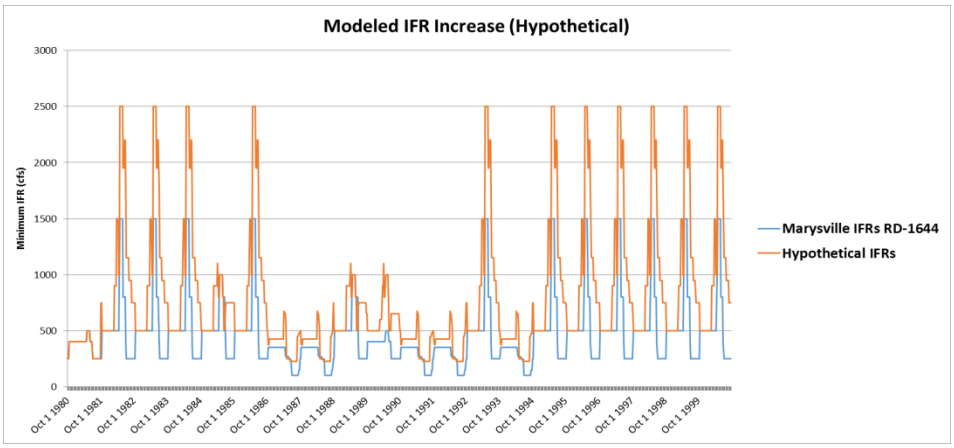
1. XLRM Problem Formulation

The CWG identified 4 main categories of uncertainties (issues of concern) – see Table 1. Of these climate and new regulations were included in the limited RDS experiment. Of the 3 new management strategies of interest, we included 1 (reservoir re-operation) and evaluated the system using specific metrics (Table 3) for 4 categories of objectives.

Table 3: XLRM Problem Formulation*: In bold are those topics that were included in the illustrative RDS experiment*

X=ISSUES OF CONCERN	L=MANAGEMENT STRATEGIES/PROJECTS
1. **CLIMATE** 2. LANDUSE 3. **NEW REGULATIONS** 4. ECONOMIC	1. ADDITIONAL STORAGE 2. WATER CONSERVATION **3. RESERVOIR RE-OPERATION**
REGIONAL DESCRIPTION/MODELS	**M=GOALS AND OBJECTIVES**
R=YUBA MODEL	1. **ECOLOGICAL** 2. **WATER SUPPLY** 3. **HYDROPOWER** 4. **FLOOD SAFETY**

Table 4: Summary of the limited RDS experimental design:

Uncertainties	
Climate	(1) Historical climate, and (2) A 4deg C increase in temperature  
Regulatory	Instream Flow requierments (IFRs) at Smartville and Marysville under (1) RD-1644 (2) Hypothetical increase similar to increase from Lower Yuba Accord 
Management Strategy/Lever	
(1) Current operations of NBB	Given flood safety and annual storage concerns, a proposed project by YCWA is the installation of a new Mid-Level Outlet on New Bullards Bar Dam, and associated relaxation of flood pool reservation requirements by the US Army Corps of Engineers

(2) Reoperating New Bullards Bar

NBB Flood Pool Reservation (TAF)	Current	Potential Re-operated
Nov 1 – Mar 31	170	80
April 1 – April 30	100	50
May 1 – Oct 31	0	0

The above RDS design called for 8 Yuba model runs: evaluating 2 management strategies (Current, NBB –re-operations) against performance against 2 regulatory regimes (RD-1644 and an increased hypothetical IFR) under 2 climate regimes (historical and a warmer climate). The performance was evaluated against the objectives and associated metrics below:

The Yuba system was evaluated under above uncertainties against four objectives using the following metrics.

Water Supply Objective:

- End of May storage in New Bullards Bar Reservoir
- Groundwater use for meeting irrigation demands
- Out-of-Basin exports via the Drum-Spaulding canal

Hydropower Objective:

- Total power produced from Colgate PH & Narrows 1, 2 PH

Sustainability Objective:

- Number of weeks Lower Yuba River flows are no greater than the minimum in-stream flow requirement
- Inter-annual groundwater storage

Flood Safety Objective:

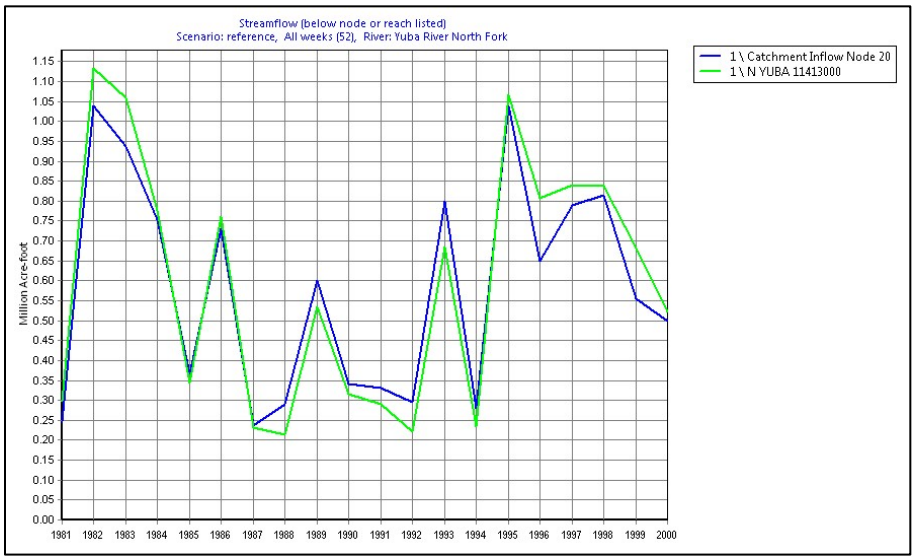
- Number of weeks in which storage at New Bullards Bar exceeds current flood pool operating limits

2. Yuba model development and runs

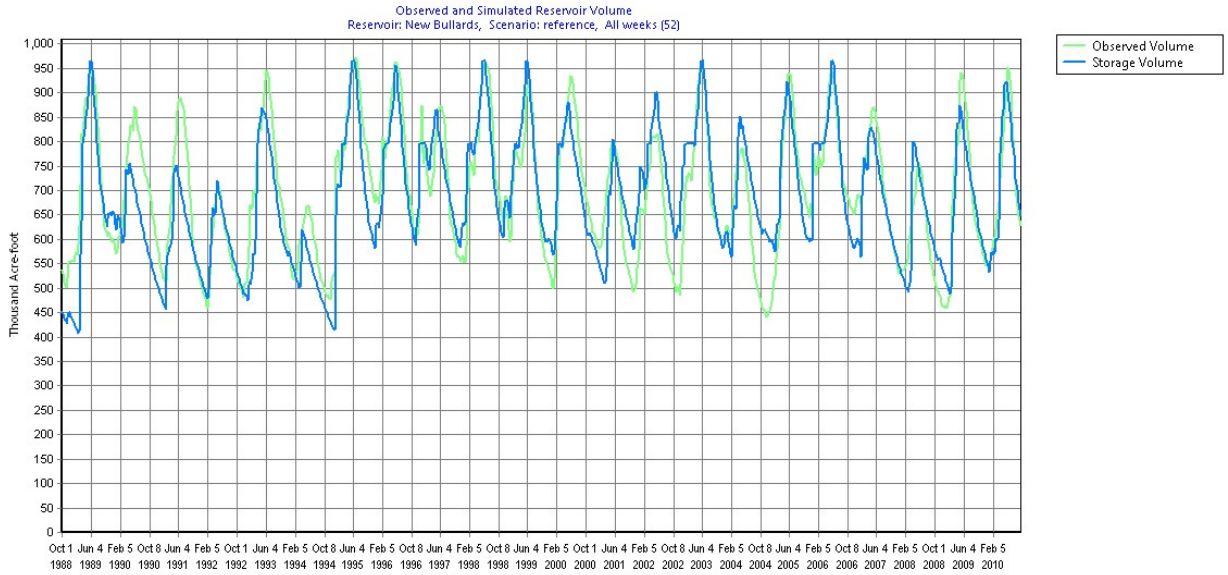
The Yuba model built in WEAP was extended to cover crop water demand and irrigation. Calibration was based on comparison with upstream river flows (Figure 3a), NBB reservoir levels (Figure 3b) and by comparing modeled applied irrigation against the DWR portfolio data on applied water for the DWR detailed analysis unit that covers the Yuba valley floor (Figure 3 c)

Figure 3: Selected Yuba model calibration results (

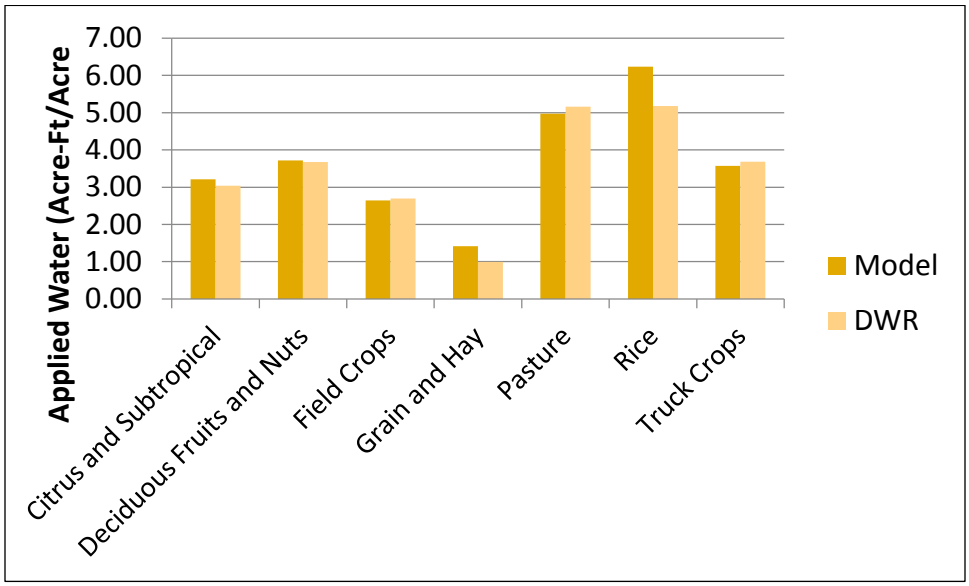
(a) 1981-200 annual flow in the North Yuba river at USGS 11413010 *(green:observed, blue :modeled)*



(b) Weekly New Bullards Bar Storage, 1989-2010 (green:observed, blue :modeled)



(c) Average annual irrigation water applied (1998-2001)



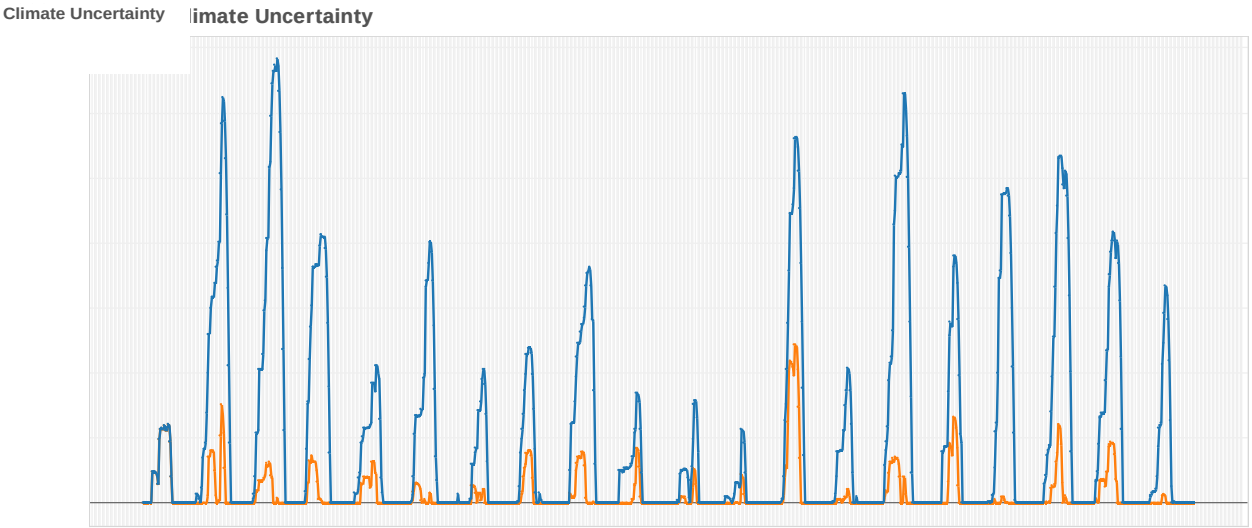
The Yuba model calibration-verification being completed, the RDS experiment was conducted by running it 8 times, each one corresponding to a specific combination of scenarios from the XLRM outputs explained earlier.

In the final experiment to be completed by August 2014, we expect many more runs corresponding to a larger number of uncertainties and management strategies, as well as larger list of objectives and metrics.

3. Results

The first vulnerability of the system to warming climate is the loss of snowpack that affects the Yuba region in all sectors.

Figure 4: Weekly snow depth under the 2 climate regimes



Below, we evaluate the system performance using each of the objectives and metrics developed in an earlier section, ending with a summary of lessons learned.

Objective: Water Supply

Metric: Average end of May Storage in NBB over 20 years (TAF)

Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	762	779
	+ 4 C	664	700
New IFR	Current Climate	755	770
	+ 4 C	662	692

- Impact of new regulations alone on end of May storage is minimal
- Climate warming substantially reduces end of May storage, due to earlier peak snowmelt running off during winter and spring months in which New Bullards Bar must maintain large flood pool storage under current operating rules
- Therefore, re-operating the flood pool significantly increases storage, even under warming

Metric: Avg annual groundwater use as percent of total irrigation over 20 years (%)

Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	30	27
	+ 4 C	57	52
New IFR	Current Climate	56	52
	+ 4 C	71	67

- Groundwater use increases under all uncertainty scenarios
- The greatest increase is under the combination of warming and new regulations
- Reservoir reoperation mitigates this increased use, but only slightly

Objective: Hydropower

Metric: Average Annual Hydropower production over 20 years (GWh)

Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	1,347	1,370
	+ 4 C	1,187	1,227
New IFR	Current Climate	1,325	1,340
	+ 4 C	1,183	1,216

- Warming climate has the potential to reduce hydropower generation (-160k MWh/yr) more than just increasing IFRs would (-22k MWh/yr)
- Reservoir re-operation mitigated loss in hydropower in the face of a warming climate and new regulations in all scenarios

Objective: Ecological sustainability

Metric: Number of weeks over 20 years during which Lower Yuba flows no greater than IFR

Smartville

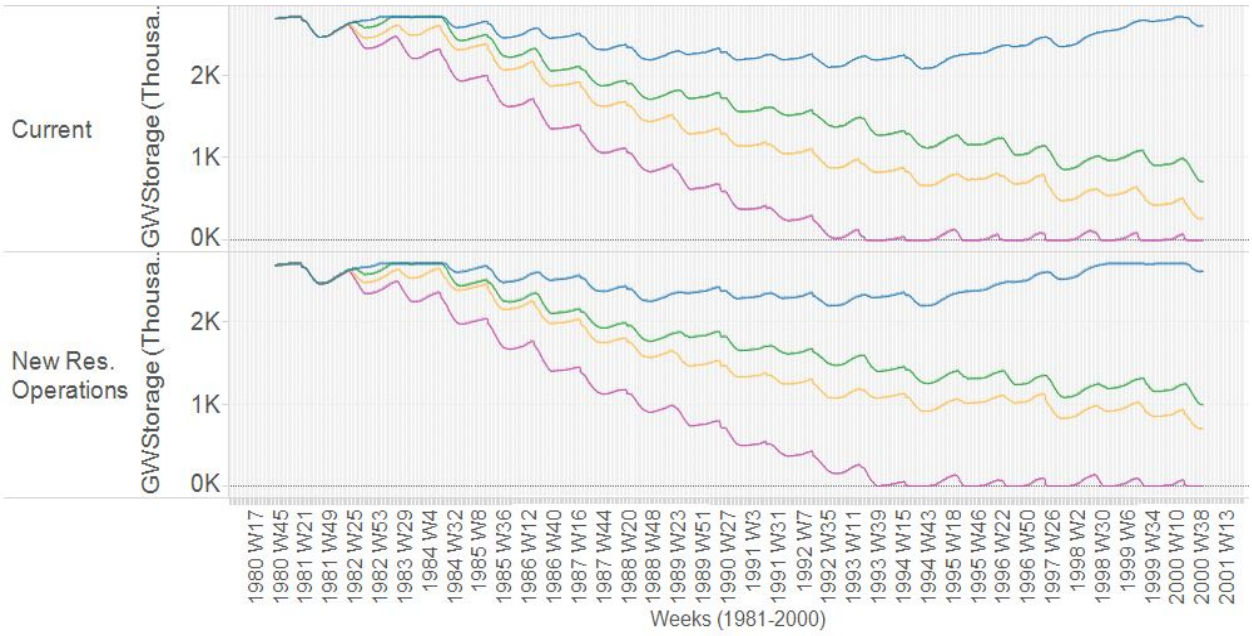
Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	22	21
	+ 4 C	38	34
New IFR	Current Climate	40	38
	+ 4 C	65	57

Marysville

Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	310	296
	+ 4 C	428	414
New IFR	Current Climate	423	421
	+ 4 C	517	500

- Flow at Smartville exceeds IFRs much more often than at Marysville
- In all cases, this week total increases, due to climate-altered hydrology and more stringent IFRs
- Re-operation is shown to slightly decrease the number of weeks in all cases in which flow is no greater than IFRs, implying that such re-operation may help supplement stream-flows in drier periods

Metric: Groundwater Storage, first 150 ft of aquifer



- Long-term aquifer drawdown is seen in all cases except for current regulations and current climate
- The first 150 ft of aquifer is drained in the combined new IFR + 4 C warming case
- Re-operation of New Bullards Bar has little impact on groundwater storage

Objective: Flood safety

Metric: new Bullards Bar Flood pool encroachment during winters:-number of weeks in 20 years when storage exceeds 786 during Nov-Mar

Regulatory Uncertainty	Climate Uncertainty	Current	New Res. Operations
Current Reg	Current Climate	116	134
	+ 4 C	137	158
New IFR	Current Climate	115	133
	+ 4 C	137	157

- Flood pool encroachment increases under climate warming due to earlier snowmelt; new IFRs have little impact.
- As expected, reservoir re-operation increases flood pool encroachment under all cases, especially under climate warming

Results Summary

The limited RDS experiment above asked the question**: Is re-operating new Bullards Bar reservoir by decreasing winter flood pool storage an effective management strategy?**

The results imply that this strategy provides co-benefits across several objectives: water supply, hydropower production, and even one ecological objective i.e IFR's. It has no positive or negative impact on groundwater aquifer status. It does not however, meet flood safety objectives.

Yuba County IRWMP | 2015 UPDATE

APPENDIX 14-1
Completed Project Solicitation Forms

Note: Not all projects were sufficiently developed to complete project solicitation forms.

Yuba Gold Fields Integrated Flood Management, Habitat and Recreation Project

AR-01

Project Sponsor Contact Information

Lead Agency/Organization	American Rivers
Name of Primary Contact(s)	Steve Rothert
Mailing Address	432 Broad St, Nevada City, CA 95959
Email Address	srothert@americanrivers.org
Phone	(530) 277-0448
Project Partners/Collaborators	SYRCL is a confirmed partner. Entities necessary as partners for project implementation include TRLIA, Yuba County, YCWA, Bureau of Land Management, Corps of Engineers and others.

I. General Project Information

Project Title	Yuba Gold Fields Integrated Flood Management, Habitat and Recreation Project
Project Total Budget	$75 million
Project Funding Match	TBD
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	Not at this time.
Project Location:	
Latitude	39° 12' 29.2062"/39.208113
Longitude	-121° 26' 36.4986"/-121.443472
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Lower Yuba River, Hammon Grove Park area and downstream
County	Yuba
City/Community	Marysville, Browns Valley
Watershed/subwatershed	Lower Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Facility Construction Restoration Demonstration/Pilot Project

II. Project Description

The Yuba Gold Fields Integrated Flood Management, Habitat and Recreation Enhancement Project (Project) is a planning, construction and restoration project that would achieve multiple, integrated objectives including: a) improving flood protection for communities in the Marysville/Olivehurst/Linda areas consistent with the mission of the Three Rivers Levee Improvement Authority (TRLIA) and Yuba County Water Agency (YCWA); b) improve juvenile salmonid rearing habitat quantity and quality to contribute to the recovery of listed salmonids consistent with restoration needs identified by resource managers; and c) improve river-focused recreational opportunities for communities in Yuba County and surrounding areas, consistent with recommendations of the 2008 Yuba County Parks Master Plan and other county objectives, particularly improving the economic vitality of the county through enhanced recreational opportunities.

The Project would integrate the planning and implementation of actions currently aimed to achieve a single purpose in a way that each project element, flood, habitat and recreation, could contribute to achieving the objectives of other project components. The project would involve designing and building levees to provide 200-yr protection; reconnecting the Yuba River with former floodplain and creating salmon rearing habitat and riparian habitat; providing a variety of recreational amenities such as trails, picnic areas and educational opportunities.

The project would involve the collaboration among TRLIA, Yuba County, YCWA, the Corps of Engineers, BLM, private aggregate operators, American Rivers, SYRCL and others.

III. Project Rationale/Issues Statement

This project would directly address objectives identified for several key regional issues:

- Infrastructure
  - The project would develop new flood control and recreational infrastructure.
- Flood management
  - The project would improve integrated flood management by bringing together multiple objectives in one project;
  - The project would directly increase flood protection and enhance floodplain functions and habitat;
  - The project would create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits.
- Recreation
  - The project would promote and implement comprehensive recreational planning with a focus on regional economic development in the Lower Yuba River and beyond to improve local economies, improve habitat, and reduce human impact and threats to public safety.
- Fisheries

  - The project would help recover endangered and threatened fish species, particularly anadromous fish, by restoring and providing access to historic floodplain habitat in the Gold Fields area.
- Land Conservation
  - The project would enhance the recreational and economic development opportunities of the otherwise largely unused Gold Fields landscape.

IV. Goals/Objectives/Performance Metrics

Goals, Objectives, Performance Measures Addressed by the Project	
1) improve flood protection for communities of Marysville, Linda and Olivehurst	1a. number of collaboratively developed plans and assessments 1b. number of water agencies/member units collaborating in the development of plans 1c. increased level of flood protection provided 1d. miles of levees constructed or improved
2) improve juvenile salmonid rearing habitat quantity and quality to contribute to the recovery of listed salmonids	2a. acres of floodplain habitat restored, re-accessed 2b. acres of riparian vegetation created 2c. acres of side channel habitat created 2d. number of plans and projects collaboratively developed
3) improve river-focused recreational opportunities for communities in Yuba County and surrounding areas, consistent with recommendations of the 2008 Yuba County Parks Master Plan and other county objectives.	3a. number of collaboratively developed plans and assessments 3b. percent of planning efforts resulting in project implementation 3c. number of recreational amenities/opportunities developed 3d. number of businesses serving use of project recreational features 3e. number of visitors to project recreational features

V. Resource Management Strategies

Practice Natural Resources Stewardship	
Ecosystem Restoration	The project would restore or enhance the ecological condition of the lower Yuba River, floodplain and riparian corridor.
Land Use Planning and Management	The project would promote land use planning and management by integrated multiple benefits into planning of the three currently separate elements.

Water-dependent Recreation	The project would promote water-dependent recreational activities such as fishing, boating and swimming.
Improve Flood Management	
Flood Risk Management	The project would improve flood management by improving flood protection for area communities.

VI. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project would assist the region in adapting to the effects of climate change by improving the flood protection for area communities to better manage extreme weather events. The project will also help by providing greater resilience of salmonid populations to climate change by restoring floodplain rearing habitat which is in critical short supply in the Central Valley. In addition, the project could help communities endure a warmer climate by providing increased opportunity for water dependent recreation.

GHG Emissions Reduction

Implementing the proposed project would generate construction-related GHG emissions that would cease after the project is constructed. Such emissions would come from vehicle engine exhaust from heavy-duty construction equipment, haul trips, and construction worker trips. The project would mitigate for GHG emissions in two primary ways. First, project outcomes, including restoration of riparian and stream habitat, will result in carbon sequestration thereby reducing CO2e/GHG emissions.

Studies show that floodplains can sequester up to 1 ton of carbon per acre per year in sediments deposited, floodplain trees can capture more 3 tons of carbon per acre per year, and aquatic organisms and plants can sequester as much as 5 tons of carbon per acre per year. In total, an acre of functional floodplain could sequester as much as 9 tons of carbon each year. Second, the project will employ several GHG emission reduction strategies, including offering local contractor preference and local purchase of construction materials where possible, encouraging carpooling, recycling of construction waste, among others. A goal of the project is to result in a net reduction in GHG emissions over time.

VII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

VIII. Project Technical Feasibility

a. List the water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County Parks Master Plan, 2008
c. List technical reports and studies supporting the feasibility of this project.	Lower Yuba River Assessment Report, 2008 (Gina Bartlett, Center for Collaborative Policy)
If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	
2. Are you in compliance with AB1420?	
3. Do you comply with the water meter requirements (CWC Section 525)?	
4. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP?	
2. If not, will you complete an AWMP prior to receiving project funding?	

If the project is related to groundwater:	
1. Has GWMP been completed and submitted for the subject basin?	
2. If not, will the GWMP be completed within one year of the grant submittal date?	

Yuba Land Conservation Easements

BYLT-01

IX. Project Sponsor Contact Information

Lead Agency/Organization	Bear Yuba Land Trust
Name of Primary Contact(s)	Marty Coleman-Hunt
Mailing Address	12183 Auburn Road
Email Address	marty@bylt.org
Phone	(530) 272-5994 ext. 202
Project Partners/Collaborators	SYRCL, private landowners

X. General Project Information

Project Title	Yuba Land Conservation Easements
Project Total Budget	$5,000,000
Project Funding Match	$1,250,000 in land value (25%) or more
Project Funding Request	$3,750,000
Can a detailed cost estimate be provided upon request?	Yes, depending on timing. Actual cost is based on appraised value at the time of funding.
Project Location:	Various
Latitude	
Longitude	
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Dobbins and Smartsville
Watershed/subwatershed	Yuba
Groundwater Basin	Fractured Hard Rock Aquifer
Project Type	Acquisitions

XI. Project Description

This project encompasses the purchase of up to four conservation easements on private land located on the Yuba River with a goal to permanently protect and maintain critical watershed land and natural resources. Each of the target properties are of substantial size, encompassing several miles of Yuba River shoreline in Yuba County. The effort seeks to limit urban development on high value river-front real estate to maintain water quality, to protect migratory corridors, and to conserve a diverse oak woodland natural habitat.

Because of improved transportation corridors, close proximity to a growing population area, and high-desirability of river-front property, this region is under development pressure. Urban development results in the adverse impacts of water quality degradation. The negative effects of road and structure construction, septic and well installation, unnatural runoff from hardscape materials and non-native plantings will be stopped forever, with these conservation easements.

This intact, healthy, oak woodland serves several beneficial ecological functions including reducing soil erosion. The riparian zone provides critical habitat for a wide range of terrestrial and aquatic species while also contributing to water quality by filtering excessive nutrients and other pollutants before the water reaches the river. Land conservation will improve and ensure the healthy functioning of these natural systems.

The flexibility of each conservation easement will protect property containing wildlife habitat, while an easement on a farm might allow continued farming. The easements may apply to all or a portion of the properties, and may or may not require public access, depending on land use and landowner desires.

Land and water management activities as defined in the conservation easements will include the removal of invasive and noxious weeds and the management of toxic runoff from a large abandoned mine site. Cattle grazing objectives would encourage biodiversity, reduce invasive plants, and reduce fire danger. Annual easement monitoring will ensure that land management is meeting objectives.

XII. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

1. Water Quality Contamination/Agricultural Run-off: Maintain and improve water quality by mitigating for urban runoff – provide a legal prohibition from development in a sensitive habitat; manage agricultural run-off by utilizing land management best practices; ensure the healthy functioning of natural systems that filter excessive nutrients and other pollutants before they reach the river.
2. Sediment Management: Manage sedimentation and implement erosion control to prevent contamination – land conservation to protect an intact, healthy, oak woodland and utilize land management best practices.
3. Invasive Species: Identify and manage for invasive species and their impacts on watershed health through land stewardship – land and water management activities in conservation easements will include the removal of invasive and noxious weeds. Cattle grazing objectives would encourage biodiversity, reduce both invasive plants and fire danger. Annual easement monitoring will ensure that land management is meeting agreed-upon objectives.
4. Land Conservation: Address the connection between land-use planning and water; Enhance recreational opportunities; Protect working landscapes – This project will limit urban development on high value river-front real estate to maintain water quality, to protect migratory corridors, to conserve a diverse oak woodland natural habitat, protect agricultural land and allow for recreational development (e.g. hunting, fishing, hiking) as landowners permit.
5. Legacy Mining Toxins: Address the physical and chemical hazards of abandoned mine lands (AMLs) with a focus on watershed-scale remediation from the most toxic mine tailings – One target property for a conservation easement is on a large abandoned mine site.

XIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	
Goal 2: Protect, restore and enhance water quality for water users and in support of healthy watersheds	Conservation easements are used to limit urban development on high value river-front real estate permanently, to maintain intact, healthy, oak woodlands and allow it to serve several beneficial ecological functions that lead to enhanced water quality.
Goal 3: Preserve and restore watershed health and promote environmental stewardship	Land and water management activities as defined in the conservation easements will encourage bio-diversity, reduce invasive plants, and reduce fire danger. Annual easement monitoring will ensure that land management is meeting objectives.
Goal 4: Enhance regional economic development by supporting recreational opportunities and sustainable agriculture	Conservation easements on agricultural land will support continued and permanent cattle ranching. The easements may or may not require public access, depending on land use and landowner desires.
Objectives Addressed by Project	
2.1 Protect and improve water quality by mitigating for urban, agricultural and wildland (sediment) run-off	The legal prohibition from development in a sensitive habitat will mitigate urban development in the city core. Agricultural run-off will be dealt with through defined and monitored best management practices.
3.2 Identify and manage for aquatic and terrestrial invasive species and their impact on water supply infrastructure and watershed health	Land and water management activities within conservation easements will include the removal of invasive and noxious weeds. Cattle grazing objectives would encourage biodiversity, reduce invasive plants. Annual easement monitoring will ensure that land management is meeting agreed-upon objectives.
3.5 Promote watershed-level remediation of legacy mining toxins	One property targeted for a conservation easement and land management plan and implementation is an abandoned mine site.
4.3 Create river corridor linkages while enhancing migration corridors for plants and animals	The target properties for conservation are of substantial size, encompassing several miles of Yuba River shoreline in Yuba County. The effort seeks to protect migratory corridors and a diverse oak woodland natural habitat.
4.5 Protect and restore working landscapes, particularly ranch/ag lands,	The private land that is targeted includes agricultural/ranch lands in a region that is under development pressure. If these properties are not conserved, they will be developed into housing.

and the watershed benefits they provide	
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Number of acres of agricultural and wildlands preserved ▪ Increased water quality monitoring and sampling regimes through the Annual Monitoring Plan ▪ Measurable improvement in water quality starting with a Baseline Documentation Report in Year One, and permanently reported on an annual basis ▪ Number of collaborative land management and restoration plans developed with partner agencies ▪ Number of acres restored ▪ Acres of riparian habitat, oak woodland, agricultural land protected or restored ▪ Number of new recreational amenities created: miles of trails, river visitation sites

XIV. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	Management of pollution and agricultural run-off with an intact natural ecosystem
Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Through the collaboratively developed land management plan and the annual monitoring report
Ecosystem Restoration	Through the development of a Baseline Documentation Report the areas in need of restoration will be identified and strategies to address issues will be deployed.
Land Use Planning and Management	Mitigating for development in urban areas by setting aside sensitive and special habitat for permanent protection
Water-dependent Recreation	The permission of river visitation points and trails on private land
Watershed Management	Through the collaboratively developed land management plan and the annual monitoring report

XV. Statewide Priorities

Drought Preparedness

- Improve landscape and agricultural irrigation efficiencies

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process

Climate Change Adaptation

The primary goal in purchasing these conservation easements is to protect and enhance water quality in the Yuba River. Intact, healthy, oak woodland serve several beneficial ecological functions important in addressing climate change, including reducing soil erosion and sustaining water quality. Through joint land management regional planning and best practices, landowners and agencies can reduce fire danger, enhance biodiversity, and ensure that there are no over-grazing, water pollution or erosion issues.

This particular riparian zone provides critical habitat for a wide range of terrestrial and aquatic species, resident and migrating. The target properties are contiguous to public lands and will allow for the creation of a conservation corridor for East-West species migration from the Sacramento Valley floor to the Sierra high-elevations.

Though the science is still quantifying the amount of oak woodland and/or native grasslands carbon sequestration it is promising that we will learn more over time about these benefits.

GHG Mitigation and Emissions Reduction

The project's purpose is to acquire conservation easements and, therefore, the protection of these lands from development offsets potential GHG emissions associated with development. The project itself does not produce any GHG emissions.

XVI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Targeted property identified		
Design	N/A		
Environmental Documentation (CEQA/NEPA)	Exempt		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	Cultural and historical values will be determined through tribal consultation as a part of the acquisition process	Awaiting funding	
Construction/ Implementation	• Obtain title report • Procure appraisal • Develop baseline documentation report • Purchase and Sale Agreement	Awaiting Funding	Awaiting Funding

XVII. Project Technical Feasibility

d. List the water planning documents that specifically identify this project.	
e. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	• BYLT Strategic Conservation Plan, January 2014 • Yuba County General Plan, Land Use Element
f. List technical reports and studies supporting the feasibility of this project.	The Trust for Public Lands, *Yuba Foothills Biological Report*, 2009

Yuba Watershed Forest and Fuels Project

BYLT-02

XVIII. Project Sponsor Contact Information

Lead Agency/Organization	Bear Yuba Land Trust
Name of Primary Contact(s)	Marty Coleman-Hunt
Mailing Address	12183 Auburn Road, Grass Valley, CA 95949
Email Address	marty@bylt.org
Phone	530-272-5994 x202
Project Partners/Collaborators	Yuba Watershed Protection & Fire Safe Council, Yuba County Water Agency, Tahoe National Forest, SYRCL, Camptonville Community Partnership

XIX. General Project Information

Project Title	Yuba Watershed Forest and Fuels Project
Project Total Budget	$1,551,000
Project Funding Match	Component 1: $196,000 Component 2: $75,000 Component 3: $100,000 $371,000
Project Funding Request	Component 1: $630,000 Component 2: $300,000 Component 3: $250,000 $1,180,000
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Component 1: throughout Yuba County foothills Component 2: Rice's Crossing on Yuba River, near Dobbins Component 3: Celestial Valley Rd, Camptonville
Latitude	
Longitude	
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Dobbins/Oregon House, Camptonville, Smartsville, Loma Rica, Brownsville
Watershed/subwatershed	Yuba and Feather
Groundwater Basin	Fractured Hard Rock Aquifer
Project Type	Planning

	Restoration Study/Assessment Monitoring

XX. Project Description

The Yuba Watershed Forest and Fuels Project integrates local efforts to promote healthy forests, reduce risks from catastrophic wildfire, and protect water quality in Yuba County. The project consists of three components: 1) implementation of a recently updated Community Wildfire Protection Plan (CWPP) for the Yuba foothills; 2) rehabilitation of 1,000 acres of forest landscape on the Yuba River; and 3) feasibility, design, engineering, and compliance studies for a multi-product forest biomass utilization campus in Camptonville.

The CWPP, scheduled to be completed in May 2014, is a comprehensive plan developed by the Yuba Watershed Protection and Fire Safe Council, with input from the public and from a diverse stakeholder group, including local fire districts, US Forest Service, BLM, CAL FIRE, Yuba County, and private timber companies. The plan recommends fuels treatments needed to protect communities and critical watershed resources from the risk of catastrophic wildfire and provide for safety during firefighting and evacuation. This project will implement recommended fuels treatments and provide public education on near-home vegetation and home construction that can decrease the risk of home loss during a wildfire.

The Yuba River forest rehabilitation project is proposed for 1,500 acres at Rice's Crossing, just below New Bullard's Bar Dam. Lands within the project site are managed by Bear Yuba Land Trust, Tahoe National Forest, and the Yuba County Water Agency. The project would address the negative impacts of recent wildfires and promote healthy forest management by 1) conducting a forest health assessment and tree inventory to establish management benchmarks; 2) completing a forest rehabilitation and soil stabilization plan, a Non-Industrial Timber Harvest Plan, and associated permits; and 3) funding recommended forest rehabilitation work.

The biomass utilization campus, or Forest Biomass Business Center (FBBC), is in planning for the former Sierra Mountain Mills site in Camptonville. The FBBC will consist of several co-located businesses that provide value-added markets for biomass produced during local hazard fuel reduction activities. This project will fund necessary project development components, such as feasibility studies, design and engineering studies, and environmental compliance.

For jobs created by all three components, preference will be given to nearby communities designated as Economically Disadvantaged.

XXI. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Sediment Management: Catastrophic wildfires can greatly increase erosion rates and sediment flow into watercourses and reservoirs. Fuel reduction and forest rehabilitation planning and implementation

would reduce the threat of wildfire and prevent associated sediment losses and water system contamination.

Forest Health: By implementing forest rehabilitation planning and landscape level fuels treatments, and creating value-added markets for forest biomass, this project would greatly enhance the stewardship of forests in the Yuba and Feather River watersheds. Healthy forests that are resilient to wildfires and the effects of climate change will protect water supply and quality.

Environmental Flows: Fuels treatments, forest rehabilitation, and biomass utilization will reduce the risk of catastrophic wildfires, thus ensuring maintenance of the quantity, timing, and quality of stream flows. Healthy, thriving forest ecosystems will also improve water quality and retention.

Invasive Species: The forest rehabilitation component will identify and implement invasive species management on 1,000 acres. Invasive species, such as scotch broom, will be managed to reduce their impacts on watershed health.

Climate Change: Healthy, resilient forests that are not overloaded with fuels will be better adapted to continue providing critical ecosystem services like protection of water supply and quality despite changing climate conditions.

XXII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by Project	• 1.3 - *Protect and restore water supplies that support watershed health.* This project will protect water supplies by reducing the risk of catastrophic wildfire, restoring forest health, and reducing sediment and nutrient inflows to streams and reservoirs. • 1.4 - *Promote disaster preparedness and conservation planning efforts.* Implementing the CWPP will allow communities to be prepared for wildfires and support local collaborative planning across the landscape by federal and private land owners. The forest rehabilitation component will support local conservation planning for newly protected critical watershed lands.

	• 2.1 - *Protect and improve water quality by mitigating for urban, agricultural and wildland (sediment) run-off*. Implementing the CWPP and the forest rehabilitation component will reduce the risk of catastrophic wildfires which cause increased erosion and sediment deposition in water systems. The forest rehabilitation project will also mitigate for soil disturbances caused by past fires. The FBBC will facilitate future coordinated landscape scale fuels reduction and watershed protection work. • 2.4 - *Protect and improve the water quality generated by healthy, forested watersheds*. All three project components will protect water quality by reducing the risk of catastrophic wildfire and reducing sediment transport to water courses and reservoirs. • 2.5 - *Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat.* See above. • 3.1 - *Steward healthy forests through fire and fuels management, erosion control measures and wetland restoration*. All three project components focus on stewardship of healthy forests through fire and fuels management. The forest rehabilitation project will directly address soil stabilization to mitigate for the effects of past fires. • 3.2 - *Identify and manage for aquatic and terrestrial invasive species and their impacts on water supply infrastructure and watershed health*. The forest rehabilitation component will identify and manage for terrestrial invasive species on 1,000 acres along the Yuba River. • 6.3 – *Increase system flexibility and resiliency to adapt to climate variability*. By implementing and facilitating fuels treatments, all three project components will increase the resiliency of watershed lands to adapt to climate variability. This variability will likely include an increased risk of catastrophic wildfire, drought, and higher average temperatures. • 6.4 – *Promote alternative energy and energy efficiency throughout the region*. One of the primary biomass utilization enterprises under consideration for the FBBC is a community-scale bioenergy plant that would produce electricity and heat from forest biomass that would otherwise be burned in open piles, resulting in a significant reduction in greenhouse gas emissions. • 7.1 - *Support DAC and tribal project development/ implementation activities by providing ongoing outreach, proposal and funding development assistance and training*. The Forest Biomass Business Center is a DAC-led development

	project that would benefit Camptonville and other surrounding DACs. This project would provide critical assistance with proposal development and project planning. • 7.2 - *Prioritize ongoing participation of DACs and tribes in the Regional Water Management Group*. This project is a collaboration between many stakeholders, several of which (e.g., YWP&FSC, Camptonville Community Partnerhsip) are representative of local DACs. Including this project in the Yuba IRWM Plan will increase DAC participation in the RWMG.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	• 1.3 - *Protect and restore water supplies that support watershed health.* - Water quality and water flow monitoring • 1.4 - *Promote disaster preparedness and conservation planning efforts.* - Number of CWPP fuels treatment projects implemented - Number of community meetings, and other community outreach venues, about CWPP - Increased safety during wildfire evacuations, miles of road with fuel reduction. - Forest health assessment, tree inventory, forest rehabilitation, and soil stabilization plans completed for Rice's Crossing • 2.1 - *Protect and improve water quality by mitigating for urban, agricultural and wildland (sediment) run-off*. - Increased water quality through monitoring and sampling - Decreased sediment load • 2.4 - *Protect and improve the water quality generated by healthy, forested watersheds*. - Number of fire and fuels management, erosion control and forest restoration projects implemented - Linear feet of streambank protected or restored - Mass pollutant reduced per year - Acres of land treated or improved • 2.5 - *Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat.* - Linear feet of stream bank protected or restored - Number and frequency of water quality monitoring and sampling - Acres of riparian habitat protected or restored - Number of collaboratively developed plans and assessments

	• 3.1 - *Steward healthy forests through fire and fuels management, erosion control measures and wetland restoration*. - Acres of land treated or improved - Linear feet of stream bank protected or restored - Acres of riparian habitat protected or restored - Number of projects developed or implemented - Increased monitoring, sampling and data analysis • 3.2 - *Identify and manage for aquatic and terrestrial invasive species and their impacts on water supply infrastructure and watershed health*. - Increased monitoring, sampling and data analysis - Number of collaborative plans and assessments developed - Number of acres treated or improved - Acres of riparian habitat protected or restored - Number of project implemented • 6.3 – *Increase system flexibility and resiliency to adapt to climate variability*. - Reduced understory fuel loads in project areas, limiting wildfires to ground fires not crown fires. • 6.4 – *Promote alternative energy and energy efficiency throughout the region*. - MW of energy produced from forest biomass • 7.1 - *Support DAC and tribal project development/ implementation activities by providing ongoing outreach, proposal and funding development assistance and training*. - Number and diversity of people reached - Number of DACs actively participating on the RWMG • 7.2 - *Prioritize ongoing participation of DACs and tribes in the Regional Water Management Group*. - Number of projects developed or implemented - Number and diversity of people reached - Number of collaboratively developed plans and assessments - Percent of planning efforts resulting in project implementation - Number of trainings conducted

XXIII. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	This project will manage erosion and sedimentation through forest management.
Practice Natural Resources Stewardship	

Ecosystem Restoration	This project will restore impaired ecosystems by removing excessive fuel loading, rehabilitating forest lands, reducing erosion, and managing invasive species.
Forest Management	See above.
Land Use Planning and Management	This project will fund implementation of one collaboratively developed management plan (Yuba foothills CWPP) and will fund the development of several other land use plans related to Rice's Crossing on the Yuba River.
Watershed Management	This project will fund assessment, restoration, management and monitoring of water quality in the Yuba and Feather River watersheds.

XXIV. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

<u>Climate Change Adaptation</u>

Implementation and facilitation of fuels management projects in the region, and comprehensive forest rehabilitation and planning efforts at critical watershed sites, will assist the region in adapting to multiple predicted effects of climate change. By reducing the risk of catastrophic wildfires and mitigating the effects of past fires, this integrated project will ensure that soil integrity remains intact, allowing for better groundwater storage and less precipitation runoff. A healthier conifer canopy in the region will sequester carbon from the atmosphere.

For the forest rehabilitation component at Rice's Crossing, a healthier, more diverse conifer forest and oak woodland will support resident and migratory animal species in an important foothills transition zone. According to a 2003 Timber Harvest Plan for this site, the forest here has a Class I soil productivity class, which is the highest quality resulting in very high annual average timber growth. This land is large

in scale and has the potential to offer greater than normal benefits to offset the effects of climate change compared to similarly sized tracts of land.

GHG Mitigation and Emissions Reduction

This project offsets GHG emissions through prevention of catastrophic fire and through ensuring greater carbon sequestration.

Project implementation will be conducted in a way to minimize GHG emissions to the degree possible.

XXV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	• Community Wildfire Protection Plan • Forest rehabilitation at Rice's Crossing • Forest Biomass Business Center	November 2013 TBD Started in 2010, ongoing	May 2014 TBD TBD
Design	• Community Wildfire Protection Plan	November 2013	May 2014
Environmental Documentation (CEQA/NEPA)	CEQA is required	Awaiting funding	
Permitting	Non-Industrial Timber Harvest Plan (NITHP)	Awaiting funding	
Tribal Consultation (if not applicable, indicate by N/A)	Tribal consultant will be encompassed in the NITHP process	Awaiting funding	
Construction/ Implementation	1) implementation of a recently updated Community Wildfire Protection Plan (CWPP) for the Yuba foothills; 2) rehabilitation of 1,000 acres of forest landscape on the Yuba River; and 3) feasibility, design, engineering, and compliance studies for a multi-product forest biomass utilization campus in Camptonville	Awaiting funding	

XXVI. Project Technical Feasibility

g. List the water planning documents that specifically identify this project.	
h. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	• Yuba Foothills Community Wildfire Protection Plan
i. List technical reports and studies supporting the feasibility of this project.	• Rice's Crossing Timber Harvest Plan, 2003 • Project Carbon Accounting – Rice's Crossing, 2014 • Yuba Foothills Biomass Feasibility Study, 2010

Camptonville Water System Improvement Project

CCSD-01

XXVII. Project Sponsor Contact Information

Lead Agency/Organization	Camptonville Community Service District (a Disadvantaged Community)
Name of Primary Contact(s)	Richard DicKard, Mark Jokerst
Mailing Address	P.O. Box 278, Camptonville, CA 95922
Email Address	rdickard@gotsky.com, mjokerst@me.com
Phone	(530) 288-3479, (530) 288-9320
Project Partners/Collaborators	Camptonville Community Partnership, 501(3)c

XXVIII. General Project Information

Project Title	Camptonville Water System Improvement Project (Phase II)
Project Total Budget	$664,300
Project Funding Match	$2,000 (plus this project meets needs critical water needs of a disadvantaged community)
Project Funding Request	$662,300
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 degrees 27 minutes 8 seconds North
Longitude	121 degrees 2 minutes 56 seconds West
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	The west slope of the Sierra Nevada foothills 35 miles northeast of Marysville and 20 Miles north of Nevada City, on Highway 49.
County	Yuba
City/Community	Camptonville
Watershed/subwatershed	Yuba River (77P5517) / Middle Fork Yuba River
Groundwater Basin	5P21.60
Project Type	Planning Facility Construction

XXIX. Project Description

The Camptonville Water System currently does not meet State CRC Title 22 water treatment standards for chlorine contact time due to a combination of operational and structural deficiencies (Sauers, 2013). The project will solve critical water quality and supply needs for the Camptonville DAC.

The project includes testing and rehabilitation of two existing wells, locating and constructing two new wells, replacement of seventy-two (72) 20 year old, non-serviceable water meters, re-constructing flushing valves to improve distribution system maintenance, installation of solar generating capacity at the treatment plant, purchase of leak-detection equipment and a Public Outreach and Education program.

The project will improve the water system's ability to supply water in times of drought when the primary surface source runs dry, will improve the ability to better evaluate and manage patterns of water use, reduce greenhouse emissions by generating green power, and provide staff with the ability to locate underground leaks to better manage limited resources.

XXX. Project Rationale/Issues Statement

This is Phase II of a two-phase project – The overall project goal is to achieve compliance with public health requirements and to develop mitigations for climate warming. The Phase II project addresses the latter goal:

Develop Ground Water Sources - The rehabilitation of the existing wells and the addition of two new wells will increase the water supply reliability in times of drought. The surface water source, Campbell's Gulch, historically runs dry in drought years. Two existing wells have flow capacity less than the MDD and poor water quality and require significant power to lift water 500 feet to the plant. New wells will gravity feed to the plant, comes closer to meeting MDD and be of higher quality.

Water use efficiency/Water conservation - New water meters will accurately report individual water usage. This will improve water use efficiency management. Water system users will learn from monthly educational materials where the water comes from, the vulnerabilities posed by that supply, and how best to control use in normal times and in drought times when rationing is in effect.

XXXI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**1.Ensure adequate and reliable water supply** 1.1 Improve water supply capacity, flexibility, efficiency, upgrading and retrofitting aging infrastructure, and developing new infrastructure 1.4 Promote disaster preparedness and conservation planning efforts 1.7 Support regulatory compliance – current and future **6.Address climate vulnerabilities** 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations 6.3 Increase system flexibility and resiliency to adapt to climate variability 6.4 Promote alternative energy and energy efficiency throughout the region

	6.5 Promote education climate change/variability's impact on water management **7.Promote equitable distribution of resources to DACs** 7.1 Support DAC project development
Objectives Addressed by Project	1.1 New Wells, treatment processes and metering equipment: ▪ New wells will improve water supply capability ▪ Well water treatment capability improves drinking water quality ▪ New meters replace inaccurate and unserviceable equipment 1.4 New Wells, leak detection equipment: ▪ System relies on well water during drought emergencies ▪ Current wells not adequate with poor water quality ▪ Leak Detection equipment benefits conservation efforts 1.7 New Wells, flushing valve improvements: ▪ Wells assist in meeting Title 22 water supply requirements ▪ Current flushing arrangements unsafe leading to non-compliance 6.1 Solar power generation: ▪ Contribute to California's Green Energy Sourcing ▪ Reduce emission footprint of the water system ▪ Become a net producer of electric power 6.3 New Wells and well water treatment improvements add flexibility: ▪ Would now have five options for water supply ▪ Treatment improvements allows use of existing wells ▪ New well sourcing in region void of iron/manganese issues may decrease treatment requirements 6.5 Public Outreach Program: ▪ Users educated on climate change's impact on local water system via published materials ▪ Electronic metering capability will assist consumer awareness 7.1 Overall Program benefit's Yuba County's most DAC ▪ Camptonville, a DAC, assisted in Yuba County IRWMP application
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	1.1 – Monthly water plant output, customer use and waste (gallons/month) reported against target values. Monthly electricity usage reported against past monthly usages. Meter calibration records. Gallons of well water produced & treated. 1.4 – Minimum gallons of available water, ADD and MDD published monthly and reported against target values. Nightly static leak rate. Number and size of leaks found. 1.7 – Number of violations of Title 22, Flushing maintenance records. 6.1 – kWh produced and consumed.

	6.3 – as above per 1.1 and 1.4. Monthly well quality and quantities reported. Raw water testing. 6.5 – Number of published water conservation inserts to users' bills and local newspaper articles including water consumption trends over multiple years. History of water use and consumer ability to react to reported meter data. 7.1 - Amount that DAC funded compared to total funds = 20%.

XXXII. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	Users educated monthly to reduce water demand. Tiered water rates to encourage conservation.
Increase Water Supply	
Conjunctive Management and Groundwater	Improve water supply capacity, flexibility, efficiency by managing surface water and groundwater by adding two new wells to the water supply system
Improve Water Quality	
Drinking Water Treatment and Distribution	Iron Manganese treatment for well water
Practice Natural Resources Stewardship	
Economic Incentives (Loans, grants, and water pricing)	Tiered water rates to encourage conservation.
Watershed Management	Reduction of water taken from watershed.

XXXIII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

Improving the drought-period water supply for this remote small community will relieve some burden on water supply from likewise stressed water suppliers.

Providing additional groundwater source supply and providing groundwater *treatment* facilities gives the water system more flexibility in managing conjunctive resources. Surface water diversions can be reduced once reliable groundwater sourcing is available. Without groundwater treatment facilities, currently the use of any groundwater resource presents immediate quality issues which prohibits groundwater use except under dire conditions.

Provision of new metering and leak detection equipment provides management tools that will reduce water supply needs, with benefits to downstream water users and suppliers.

GHG Emissions Reduction

Project Bid Documents will give preference to

- Local suppliers, contractors and labor pools;
- Use of recycled or low GHG materials where possible;
- Use of construction details and techniques to minimize emissions;
- Contractors that encourage and promote car-pooling and transport sharing for deliveries
- Use of B20 fuels

The Project includes construction of solar power generation facilities at the Treatment Plant:

- Current power needs are small. Phase I and II improvements will *increase power demands* at the plant;
- Climate change is likely to increase periods of drought, which will increase the need for ground water, which will increase the power demands of the water system for pumping groundwater;
- Generating and trading power to PG&E will offset the increased GHG emissions created by the project construction, project improvements and future climate change impacts.

The generation facility is sized to offset anticipated annual power demands assuming normal operations plus periodic droughts pro-rated onto an annualized basis.

XXXIV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	30% design	November, 2012	Completed March, 2013
Design	Final design pending funding	To be determined	To be determined
Environmental Documentation (CEQA/NEPA)	Pending funding	To be determined	To be determined
Permitting	Pending funding	To be determined	To be determined
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending funding	To be determined	To be determined

XXXV. Project Technical Feasibility

j. List the water planning documents that specifically identify this project.	▪ Camptonville Water System Evaluation and Improvement Study, GEI Consultants, December 2012 ▪ Yuba County Environmental Health Inspection Report, September 5, 2012 ▪ CCSD Capitol Improvement Plan, June 11, 2013 ▪ Public Health Compliance Evaluation, Sauers Engineering, March 2013.
k. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	▪ Cosumnes, American, Bear, Yuba (CABY) IRWMP
l. List technical reports and studies supporting the feasibility of this project.	▪ Public Health Compliance Evaluation, Sauers Engineering, March, 2013 ▪ Ground Water Analysis, Plumas Geohydrology, March, 2013 ▪ Camptonville Water System Improvement Project 30% Design, Sauers Engineering, March 2013

If the project is related to groundwater:	
3. Has GWMP been completed and submitted for the subject basin?	Yes, the Yuba County Ground Water Management Plan prepared by the Yuba County Water Agency
4. If not, will the GWMP be completed within one year of the grant submittal date?	

Citywide Storm Drain Improvement Project

WTLD-01

XXXVI. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761

XXXVII. General Project Information

Project Title	Citywide Storm Drain Improvement Project
Project Total Budget	$360,000
Project Funding Match	$90,000
Project Funding Request	$270,000
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	City of Wheatland Sphere of Influence
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	City of Wheatland – Citywide
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River/Dry Creek
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Facility Construction Restoration Best Management Practices

XXXVIII. Project Description

Citywide Storm Drain Improvement Project – The project consists of construction of various storm drain improvements to eliminate localized flooding and reduce stormwater pollution including installation of new catch basins and storm drain, repair of existing broken storm drains and CMP drainage culverts, and repair of existing storm drains at railroad crossings.

1) Front Street – Installation of two (2) catch basins with trash capture devices and 18" storm drain pipe.
2) Front Street Alley – Upgrade to existing collapsed 12" ACP storm drain with RCP and install trash capture devices at 2 existing catch basins.
3) Malone Drive @ South Grasshopper Slough – Replacement of existing 48" CMP arch culvert that is partially collapsed and undersized (restricts 100-yr flow).
4) Railroad Crossings – Replacement and/or rehabilitation of four (4) 18" storm drains crossing underneath Union Pacific Railroad Right of Way and installation of trash capture devices.

XXXIX. Project Rationale/Issues Statement

Flood Management:

A large portion of the Wheatland area is designated to be in FEMA Flood Zone A. The project is intended to increase flood protection and reduce localized flooding during major storm events. Specifically, the project would:

- increase flood protection for the residents of the City of Wheatland
- aim to increase collaboration with adjacent reclamation districts to enhance flood management for public safety

Water Quality Contamination: Urban and Agricultural Run-off:

By installing trash catchment devises the project would improve water quality by mitigating for urban runoff.

XL. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management
Objectives Addressed by Project	2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration. In particular, this project would eliminate areas prone to localized flooding.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative	▪ The project success will be measured by the collaboration of the City of Wheatland and surrounding reclamation districts to increase flood protection to the City and surrounding areas within the floodplain.

measurement reflecting successful project outcomes.	▪ Reduce pollutants from entering the storm drains and depositing into the river system ▪ Increasing water quality through pollution prevention and run off management

XLI. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	Capture trash and pollutants at new inlets
Urban Runoff Management	Proper routing of runoff
Improve Flood Management	
Flood Risk Management	The project incorporates Flood Risk Management Strategies by constructing necessary drainage improvements.

XLII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Improved flood protection

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

<u>Climate Change Adaptation</u>

The project will assist in adapting to regional effects of climate change by improving the drainage system in Wheatland. Improvements to the drainage system will provide lower flood risk to existing right of way and adjacent property while providing treatment of storm runoff.

<u>GHG Emissions Reduction</u>

Construction- related GHG emissions reduction strategies will be considered during the design phase of the project.

XLIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date

Planning	Preliminary planning complete		
Design	Conceptual design complete		
Environmental Documentation (CEQA/NEPA)	TBD- pending funding		
Permitting	TBD- pending funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

XLIV. Project Technical Feasibility

m. List the water planning documents that specifically identify this project.	
n. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Capital Improvement Plan Storm Drain Master Plan
o. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier: N/A	
5. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
6. Are you in compliance with AB1420?	N/A
7. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier:	
3. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: Yes	
5. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Dry Creek Levee Improvement Project

WTLD-02

XLV. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761
Project Partners/Collaborators	Reclamation District 2103 Reclamation District 817

XLVI. General Project Information

Project Title	Dry Creek Levee Improvement Project (Phases 1, 2, & 3)
Project Total Budget	$6,800,000 - $16,200,000
Project Funding Match	25% Local Match
Project Funding Request	$6,800,000 - $16,200,000
Can a detailed cost estimate be provided upon request?	No- conceptual level estimate only. Refer to reference document; "External Flood Source Protection Plan" Alternative 1.
Project Location:	City of Wheatland
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes- included
Project Location Description:	Near the City of Wheatland – south side of the Dry Creek Levee
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River & Dry Creek
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Planning Facility Construction Restoration Study/Assessment

XLVII. Project Description

South Side Dry Creek Levee – The scope of the project consists of improvement to approximately 4.4 miles of the south side of Dry Creek levee from the San Joaquin drainage ditch to 3,000 feet west of Oakley Lane. Restoration and improvement will provide additional flood protection to existing homes the proposed developments within the City of Wheatland. The project will provide levee protection to approximately 1,955 acres of land within the City's sphere of influence.

The project will consist of three phases: investigation, design, and construction. The investigation phase of the project will consist of geotechnical investigation and levee assessment to determine the specific engineering parameters required to complete a restoration design. The design phase of the project consists of the environmental clearance, permitting, and final engineering design. The final phase will be construction of levee improvements and levee certification.

XLVIII. Project Rationale/Issues Statement

A majority of the City of Wheatland is currently designated to be in FEMA Flood Zone A. The existing levee system near the City of Wheatland does not provide an adequate level of flood protection for existing homes and future development in or near the City. The project is intended to create multi-stakeholder collaboration for **flood management** and increased flood protection for the City of Wheatland and adjacent unincorporated county areas.

XLIX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management
Objectives Addressed by Project	a. Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Achieving 100 year protection meeting federal flood control standards ▪ Achieving 200 year protection meeting state flood control standards

L. Resource Management Strategies

Improve Flood Management	
Flood Risk Management	The project incorporates Flood Risk Management Strategies by constructing levee improvements.

LI. Statewide Priorities

Practice Integrated Flood Management

- Improved flood protection

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project will assist in adapting to regional effects of climate change by improving the levee system in Wheatland. Improvements to the levee system will provide additional protection from historic base flood elevations and provide lower flood risk to existing and proposed development in and around the City of Wheatland. Upon completion of the project all existing and future development within the project floodplain will be able to submit Letter of Map Revisions (LOMR) to the Federal Emergency Management Agency (FEMA) for establishment and/or change in Base Flood Elevation (BFE).

GHG Emissions Reduction

Construction- related GHG emissions reduction strategies will be considered during the design phase of the project.

LII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Planning Complete		2005
Design	Conceptual Complete		
Environmental Documentation (CEQA/NEPA)	TBD- pending funding		
Permitting	TBD- pending funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

LIII. Project Technical Feasibility

p. List the water planning documents that specifically identify this project.	N/A

q. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	City of Wheatland General Plan
r. List technical reports and studies supporting the feasibility of this project.	City of Wheatland General Plan Update – External Flood Source Protection Plan RD2013-Dry Creek Levee Feasibility Study (Pending 2014)
If you are an Urban Water Supplier: N/A	
8. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
9. Are you in compliance with AB1420?	N/A
10. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
4. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: Yes	
6. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

North Stormwater Detention Basin Rehabilitation

WTLD-03

LIV. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761
Project Partners/Collaborators	Reclamation District 2103 Reclamation District 817

LV. General Project Information

Project Title	North Stormwater Detention Basin Rehabilitation
Project Total Budget	$300,000
Project Funding Match	$75,000
Project Funding Request	$225,000
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	North of Wheatland City Limit at Dry Creek
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes-Map Provided with application
Project Location Description:	City of Wheatland
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River/Dry Creek
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Facility Construction Restoration Best Management Practices

LVI. Project Description

Dry Creek Detention Basin Rehabilitation – This project consists of minor grading improvements to the existing basin and canals, construction of a stilling basin at the pump intakes, replacement of existing

pumping equipment that has reached its service life, establishing an outlet canal to prevent erosion near the existing levee and repair erosion at the toe of the levee.

LVII. Project Rationale/Issues Statement

A large portion of the Wheatland area is designated to be in FEMA Flood Zone A. The project is intended to increase flood protection for the City of Wheatland and its sphere of influence and specifically address the following issues:

Infrastructure

Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Sediment Management

Manage sedimentation to maintain and/or increase water-holding capacity in reservoirs, and to implement erosion control to prevent contamination in water courses and water management operations

Flood Management

- Improve integrated flood management to ensure better emergency preparedness
- Increase flood protection and enhance floodplain functions and habitat

Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits

LVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The Goal of the North Stormwater Detention Basin Rehab project is to increase water quality and protect public safety through integrated flood management. It specifically addresses the following Plan goals: ***Goal 2:*** Protect, restore and enhance water quality for water users and in support of healthy watersheds ***Goal 5:*** Protect public safety through emergency and drought preparedness and integrated flood management
Objectives Addressed by Project	The objective of the North Stormwater Detention Basin Rehab project is to improve the quality of storm water discharged to Dry Creek and increase reliability and function of the existing pumping equipment to enhance flood protection. The project specifically addresses the following Plan objectives: 2.1 Protect and improve water quality by mitigating for urban, agricultural and wildland (sediment) run-off

	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	The project success will be measured by the reduction in turbidity of storm water discharged by the facility.

LIX. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	Reduce sediment in discharge water
Urban Runoff Management	Reduce turbidity of discharge water
Improve Flood Management	
Flood Risk Management	The project incorporates Flood Risk Management Strategies by constructing drainage improvements

LX. Statewide Priorities

Use and Reuse Water More Efficiently

- Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems.

Practice Integrated Flood Management

- Better emergency preparedness and response

- Improved flood protection

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses.

Climate Change Adaptation (maximum 200 words)

The project will assist in adapting to regional effects of climate change by improving the drainage and detention basins for Wheatland. Improvements to the drainage system will provide lower flood risk to existing and proposed development.

GHG Emissions Reduction

The project contributes to the reduction in GHG emissions by upgrading existing pumps with higher efficiency, cleaner pumps and scheduling off-peak pumping to improve overall, system-wide energy efficiency and to reduce GHG emissions.

LXI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Preliminary Planning Complete		
Design	Preliminary Design Complete		
Environmental Documentation (CEQA/NEPA)	TBD- pending funding		
Permitting	TBD- pending funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

LXII. Project Technical Feasibility

s. List the water planning documents that specifically identify this project.	
t. List the adopted planning documents the proposed project is consistent with (e.g., General	Capital Improvement Program Storm Drain Master Plan

Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
u. List technical reports and studies supporting the feasibility of this project.	Preliminary design and calculation documentation
If you are an Urban Water Supplier: N/A	
11. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
12. Are you in compliance with AB1420?	N/A
13. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
5. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: YES	
7. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Reclaimed Water Feasibility Study

WTLD-04

LXIII.Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761

LXIV. General Project Information

Project Title	Reclaimed Water Feasibility Study
Project Total Budget	$150,000
Project Funding Match	$37,500
Project Funding Request	$112,500
Can a detailed cost estimate be provided upon request?	No
Project Location:	City of Wheatland Sphere of Influence
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	City of Wheatland
County	Yuba Counties
City/Community	City of Wheatland
Watershed/subwatershed	Bear River Watershed
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Planning Study/Assessment

LXV. Project Description

The City of Wheatland will assess the feasibility of constructing a recycled water distribution system to provide recycled water for existing and future landscape, agricultural, commercial, and industrial uses in and around the City of Wheatland. This project also provides an important complement to a separate by related project to upgrade and recertify the waste water treatment plant. Improvement to the waste

water treatment plant would include incorporating the capability for tertiary treatment and distribution of recycled water.

LXVI. Project Rationale/Issues Statement

The project addresses the region's water conservation needs by studying the feasibility of constructing a recycled water system for the City of Wheatland. The project specifically addresses the following identified issues:

Infrastructure

Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Water-use Efficiency and Conservation

Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

Groundwater

Protect groundwater and groundwater-dependent ecosystems, especially to address the projected impacts of climate change

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

LXVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The objective of the feasibility study is to ensure an adequate and reliable water supply that meets the needs of the City of Wheatland. The project specifically meets the following Plan goals: **Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	The objectives of the feasibility study is the understanding the potential to improve the water supply system capacity by development of new infrastructure. The project specifically addresses the following objectives: 1.1 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage;

	upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse 1.6 Preserve water supplies that support recreational opportunities and agricultural uses 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ The project success will be measured by implementation of the project constructing recycled water infrastructure to enhance water conservation. ▪ Number of city staff, elected officials and members of the public informed and educated about feasibility of developing a recycled water program.

LXVIII. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	Potential implementation could substantially reduce urban water use.
Increase Water Supply	
Conjunctive Management and Groundwater	Investigate potential re-charge of groundwater supply.
Recycled Municipal Water	The project incorporates Increased Water Supply strategies by studying the feasibility of constructing a recycled water system for the City of Wheatland.

LXIX. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use
- Efficient groundwater basin management

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water recycling

Ensure Equitable Distribution of Benefits

- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The project will assist in adapting to regional effects of climate change by giving the City of Wheatland an understanding and anticipated costs to construct a recycled water system allowing for reuse of water thereby increasing water conservation for better drought preparedness and water system resiliency in response to climate variability.

GHG Emissions Reduction

The project advances the implementation of a municipal recycled water program for the City of Wheatland that would increase conservation and reduce long term water use, thus saving the energy and emissions related to its delivery. Additionally, the feasibility study will consider GHG emissions reduction as one of its criteria when selecting among project alternatives.

LXX. Project Status and Schedule

This feasibility study constitutes the preliminary planning and design aspects of advancing a recycled water program in the City of Wheatland. The project is, therefore, ready to proceed.

LXXI. Project Technical Feasibility

v. List the water planning documents that specifically identify this project.	N/A
w. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	City of Wheatland General Plan
x. List technical reports and studies supporting the feasibility of this project.	City of Wheatland – Water Master Plan
If you are an Urban Water Supplier: N/A	

14. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
15. Are you in compliance with AB1420?	N/A
16. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
6. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: Yes	
8. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Stormwater Program Management- Equipment Purchase

WTLD-05

LXXII. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761

LXXIII. General Project Information

Project Title	Stormwater Program Management – Equipment Purchase
Project Total Budget	$590,000
Project Funding Match	$147,500
Project Funding Request	$442,500
Can a detailed cost estimate be provided upon request?	N/A
Project Location:	City of Wheatland Sphere of Influence
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	N/A
Project Location Description:	City of Wheatland
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River Watershed
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Monitoring Acquisitions

LXXIV. Project Description

The project is to purchase two vehicles, a street sweeper and vactor truck, for the City of Wheatland Public Works Department for stormwater management and water quality purposes. Purchase of the vehicles will allow the City to maintain compliance with the State and Regional Water Quality Control Boards and the Clean Water Act requirements. The volume of trash and debris collected by street

sweeping and storm drain cleaning will be documented and monitored. This project is an integral component of the City of Wheatland's Storm Drain Master Plan and towards the development of a Stormwater Management Program.

LXXV. Project Rationale/Issues Statement

The purchase and use of equipment allows the City's stormwater program to maintain regulatory compliance with State and Regional Water Quality Control Board and the Clean Water Act requirements. Specifically, the project addresses the following identified regional issues:

Water Quality Contamination: Urban Run-off

Maintain and improve water quality by mitigating for urban runoff

Regulatory Compliance

Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

LXXVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	Increase downstream water quality by reducing storm water pollution. Specifically, this project meets the following Plan goal: **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	Capture pollutants before they reach receiving waters. Specifically, this project addresses the following Plan objectives: 2.1 Protect and improve water quality by mitigating for urban, agricultural and wildland (sediment) run-off; 2.2 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards.

	6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Increase monitoring and reporting of pollutants that are captured annually at each location, and compare year to year results. ▪ Decrease pollutants entering the stormwater system and ultimately the river course. ▪ Increase public safety and flood protection

LXXVII. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	The project incorporates pollution prevention by allowing the City to purchase vehicles designed to aid in stormwater management and pollution prevention.

LXXVIII. Statewide Priorities

Use and Reuse Water More Efficiently

- Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

<u>Climate Change Adaptation</u>

This project allows the City to effectively remove debris from the storm drain system as an essential preventative measure to mitigate for localized flooding. Climate change vulnerabilities for the region suggest that more extreme storm events may contribute to the intensification of regional flooding. This project significantly contributes in adapting to these conditions.

<u>GHG Emissions Reduction</u>

The project would purchase a new vactor truck and street sweeper that are cleaner vehicles with lower emissions than the existing, less effective equipment. The purchase of this equipment would assist the City in meeting street-level air quality management district standards.

LXXIX. Project Status and Schedule

The project is aligned with the City of Wheatland's Storm Drain Master Plan and is ready to proceed.

LXXX. Project Technical Feasibility

Provide any related documents that describe and confirm the technical feasibility of your project.

y. List the water planning documents that specifically identify this project.	
z. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Wheatland General Plan Update Storm Drain Master Plan
aa. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier: N/A	
17. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
18. Are you in compliance with AB1420?	N/A
19. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
7. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: Yes	
9. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Wastewater Treatment Plant Improvement Project

WTLD-06

LXXXI. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761
Project Partners/Collaborators	Reclamation District 2103 Reclamation District 817

LXXXII. General Project Information

Project Title	Wastewater Treatment Plant Improvement Project
Project Total Budget	$4,000,000
Project Funding Match	$1,000,000
Project Funding Request	$3,000,000
Can a detailed cost estimate be provided upon request?	Preliminary cost estimate available
Project Location:	City of Wheatland
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	City of Wheatland – Malone Drive adjacent to Bear River
County	Yuba Counties
City/Community	City of Wheatland
Watershed/subwatershed	Bear River Watershed
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Facility Construction Restoration Best Management Practices

LXXXIII. Project Description

The Wastewater Treatment Plant Improvement Project will convert Wheatland's existing plant from a secondary to tertiary treatment plant, relocate the infiltration basins from the flood plain to the protected side of the Bear River Levee and provide equipment to provide safeguards from potential sewer overflows.

LXXXIV. Project Rationale/Issues Statement

The City of Wheatland wastewater treatment plan currently has a lack of redundancy (that is found in modern plants), and the plant infiltration ponds are currently on the river side of the Bear River levee. In 2005, the river rose to a near flood stage level and washed the City's infiltration ponds away resulting in a direct discharge of secondary treatment effluent into the Bear River. The project addresses the need to improve wastewater management and reduce potential water quality impacts from unanticipated discharges. The project also gives the City of Wheatland the opportunity to convert some of the new infiltration ponds into storage for recycled water.

This project specifically addresses the following regional issues:

Wastewater Management

Improve wastewater management and manage water quality impacts from spills and discharges while addressing the rising costs of operation and regulatory compliance

Water Use Efficiency/Water Conservation

Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

Regulatory Compliance

Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration

LXXXV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The Goal of the Wastewater Treatment Plant Improvement project is to protect, restore and enhance water quality for water users and in support of healthy watersheds **(Goal 2).** Additionally, the project would equip the wastewater treatment facility with the infrastructural capacity to store water for re-use as recycled water, therefore potentially ensuring adequate and reliable water supply that meets the diverse needs of the region **(Goal 1)**.
Objectives Addressed by Project	The objective addressed by the Wastewater Treatment Plant Improvement project is to minimize water quality impacts from effluent discharges and wastewater spills. The project specifically addresses the following Plan objectives: 2.2 Minimize water quality impacts from flood, effluent discharge and wastewater spills;

	2.6 Support regulatory compliance with current and future state and federal water quality standards; 1.3 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary; 1.4 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ The project success will be measured by obtaining plant re-certification with the Regional Water Quality Control Board. ▪ Attain tertiary level water quality.

LXXXVI. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	Recycled water
Urban Water Use Efficiency	Recycled water
Improve Water Quality	
Pollution Prevention	The project incorporates improved water quality strategies by relocating the infiltration ponds to eliminate a direct discharge of secondary treatment effluent into the Bear River. Redundant equipment will reduce risk of sewer overflows.
Practice Natural Resources Stewardship	
Recharge Areas Protection	Through the use of rapid infiltration basins on the landward side of the levee
Improve Flood Management	
Flood Risk Management	Removes critical facility from the flood plain

LXXXVII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- Reduce Energy Consumption: Water recycling

Practice Integrated Flood Management

- Better emergency preparedness and response

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project will assist in adapting to regional effects of climate change by improving the wastewater treatment plant to use water more efficiently, by removing wastewater ponds from restricting river flow and by giving the City of Wheatland the ability to convert some of the infiltration ponds into storage for recycled water, allowing for reuse of water.

GHG Emissions Reduction

This project would reduce GHG emissions by increasing the energy efficiency of the wastewater treatment plan by upgrading pumps, reducing peak hour energy use, and by developing the capability for water reuse and recycling.

LXXXVIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Reliability Study completed planning process		2011
Design	Study provided concept design		2011

Environmental Documentation (CEQA/NEPA)	TBD- pending funding		
Permitting	TBD- pending funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

LXXXIX. Project Technical Feasibility

bb. List the water planning documents that specifically identify this project.	N/A
cc. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	City of Wheatland General Plan Correspondence and meeting minutes from the Regional Water Quality Control Board.
dd. List technical reports and studies supporting the feasibility of this project.	Wastewater Treatment Plant Reliability Study (April 2011)
If you are an Urban Water Supplier: N/A	
20. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
21. Are you in compliance with AB1420?	N/A
22. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
8. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: N/A	
10. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Wheatland Water System Reliability Project

WTLD-07

XC. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761

XCI. General Project Information

Project Title	Wheatland Water System Reliability Project
Project Total Budget	$425,000
Project Funding Match	$106,250
Project Funding Request	$318,750
Can a detailed cost estimate be provided upon request?	No
Project Location:	City of Wheatland
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	City of Wheatland
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River Watershed
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Facility Construction Study/Assessment Monitoring Best Management Practices

XCII. Project Description

The City of Wheatland water system is aging with portions of the system in excess of 100 years old. The project consists of replacement of aging and leaking infrastructure throughout the City. The City of

Wheatland maintains an aging existing elevated water tower. Noticeable corrosion, bent and loose turnbuckles have been observed on the existing structure. The City has completed a structural analysis of the tower in October 2010. The analysis shows the tower cannot withstand 60% of the lateral force required by the 2007 California Building Code Seismic Standards. Since that time the City has operated the elevated tank at reduced levels as water demand allows. The first phase of the project will remove the seismically deficient water tower from service and employ new ground mounted hydro-pneumatic tanks and booster pumps to supply water pressure to the City. The project also consists of replacement of existing well meters, leak detection studies, and repair of the City's water system to enable adequate water system monitoring. In order to determine leak locations, the City needs to replace failing meters at the six existing wells to adequately quantify the supply of water to the system. The second and third phases consist of a leak detection assessment and repairs of leaks to the system.

XCIII. Project Rationale/Issues Statement

Replacement of the City's water tower with a ground mounted storage tank would allow the City of Wheatland to efficiently store water in its storage tanks. Due to the seismic deficiency of the tower, the storage tank is only filled to 20 to 50% of its capacity. Removal of a seismic hazardous water tower and storage tank and replacement with ground mounted equipment also removes the risk of potential damage to within the City's Corporation Yard and Water Operations Office. This has the potential for disruption of water service for all of its customers. New pumps and variable frequency drive motors will reduce energy consumption required to pressurize the water system. The project addresses the region's water conservation and water use efficiency issues by assessing and repairing the City's water system to eliminate and monitor leaks. Specifically, the project addresses the following identified issues:

Water Storage Develop new water storage or identify alternatives to new storage that would increase water supply as a result of projected future uncertainties

Infrastructure

Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Water-use Efficiency and Water Conservation

Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

Groundwater

- Promote integrated management of groundwater and surface water
- Protect groundwater, especially to address the projected impacts of climate change

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

XCIV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The primary goal of the Wheatland Water System Reliability Project is to ensure an adequate and reliable water supply that meets the needs for the City of Wheatland **(Goal 1).** The project, additionally, meets the following goal: **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	This project addresses the following Plan objectives by eliminating leaks throughout the City's water distribution system: 1.1 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse 1.4 Promote disaster preparedness and conservation planning efforts 1.7 Support regulatory compliance with current and future state and federal water supply standards 6.2 Improve data (through monitoring) to better understand the impacts of climate change on regional and inter-regional water supply and watershed health 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ The project success will be measured by promotion of water conservation, conjunctive use, reuse and recycling. ▪ Achieve long term reduction of water use. ▪ Increase urban and agricultural water use efficiency measures such as conservation and recycling. ▪ Reduce Energy Consumption: Water use efficiency

XCV. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	Reduce water losses
Improve Water Quality	

Drinking Water Treatment and Distribution	Reduce potential contamination of water supply and of surface waters by eliminating system leaks.

XCVI. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water use efficiency
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Better emergency preparedness and response

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

This project reduces the City's reliance on water storage by replacing the current elevated tank with hydro-pneumatic tanks to supply water system pressure. With removal of the elevated tank the system can better handle increased consumption due to increased temperatures as system pressure will not be dependent on elevated water storage. The project also will remove water leaks in the system and increased monitoring will increase system efficiency, thereby reducing overall water consumption. Reduction in water leakages and monitoring will increase system efficiency thereby reducing overall water consumption.

GHG Emissions Reduction

The project contributes to the reduction in GHG emissions by selecting project components and upgrades, such as pumps, based on energy efficiency. The project will also scheduling pumping

operations to reduce peak hour energy use. The project will also increase water supply efficiency with increased monitoring and metering.

XCVII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES (highlight in gray if applicable)

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Identified through CIP		
Design	TBD – Pending Funding		
Environmental Documentation (CEQA/NEPA)	TBD – Pending Funding		
Permitting	TBD – Pending Funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	TBD – Pending Funding		

XCVIII. Project Technical Feasibility

ee. List the water planning documents that specifically identify this project.	
ff. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Capital Improvement Program
gg. List technical reports and studies supporting the feasibility of this project.	City of Wheatland – Water Master Plan
If you are an Urban Water Supplier: N/A	
23. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
24. Are you in compliance with AB1420?	N/A
25. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	

9. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: N/A	
11. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Well System Monitoring Rehabilitation Project

WTLD-08

XCIX. Project Sponsor Contact Information

Lead Agency/Organization	City of Wheatland
Name of Primary Contact(s)	Dane Schilling
Mailing Address	111 C Street, Wheatland, CA 95692
Email Address	Schilling@coastlandcivil.com
Phone	530-633-2761

C. General Project Information

Project Title	Well System Monitoring Rehabilitation Project
Project Total Budget	$210,000
Project Funding Match	25% Local Match/ possibility of attaining DAC status waiver
Project Funding Request	$210,000
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	City of Wheatland Sphere of Influence
Latitude	39.0076372
Longitude	-121.4288639
Could you provide a map of the project location including boundaries upon request?	Yes-Provided with application
Project Location Description:	City of Wheatland
County	Yuba County
City/Community	City of Wheatland
Watershed/subwatershed	Bear River Watershed/Dry Creek
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Facility Construction Restoration Study/Assessment Monitoring

CI. Project Description

The City of Wheatland currently operates six (6) deep groundwater wells, which supply water to the City's two storage tanks. The storage tanks have a capacity to hold up to 732,000 gallons of water. The wells are controlled by a computer system (SCADA) which monitors on/off status, flow rate, pressure, chlorine

residual level, and well casing pumping water level at each site. The current monitoring systems in use for each of the wells are deficient and/or are no longer working. The City proposes to conduct a full assessment to determine the extent of deficiencies to each of the monitoring systems. It is currently assumed repairs and/or replacement equipment would include sensors and a SCADA telemetry radio system. In addition, the project would install continuous recording devices and update to the monitoring software including operator training.

CII. Project Rationale/Issues Statement

City staff has determined the monitoring systems for the six deep groundwater wells have fallen into poor condition and require rehabilitation. The project will repair, replace, and retrofit aging groundwater well infrastructure to ensure adequate and reliable water supply for the City of Wheatland. The project addresses the following identified issues for the region:

Infrastructure
Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Groundwater
Promote integrated management of groundwater and surface water

Regulatory Compliance (Water Quality)
Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration

CIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	Well System Monitoring Rehabilitation Project will ensure an adequate and reliable water supply that meets the needs for the City of Wheatland. Specifically, this project addresses the following Plan Goals: **Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds
Objectives Addressed by Project	Well System Monitoring Rehabilitation Project is targeted to improve the water supply system for the City of Wheatland by upgrading and retrofitting again infrastructure. Specifically, the project addresses the following Plan Objectives: 1.5 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage;

	upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary 2.6 Support regulatory compliance with current and future state and federal water quality standards
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ The project success will be measured by completing the construction and/or rehabilitation of the existing monitoring systems for each of the six deep groundwater wells.

CIV. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	The project incorporates Conjunctive Management and by allowing the City to monitor the wells, evaluate the monitoring data to develop local management objectives, and use of monitoring data to establish and enforce local management policies.
Improve Water Quality	
Drinking Water Treatment and Distribution	The project will improve water quality through better, more reliable monitoring of chlorine residual.

CV. Statewide Priorities

Drought Preparedness

- Efficient groundwater basin management

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

<u>Climate Change Adaptation</u>

The project will rehabilitate and upgrade the well monitoring systems and City will use the monitoring data to establish and enforce local management policies. The establishment of local management policies will assist to the regional effects of climate change by efficiently managing the use of the groundwater basin by the City of Wheatland.

<u>GHG Emissions Reduction</u>

This project would reduce GHG emissions by increasing the energy efficiency of the wastewater treatment plan by upgrading pumps, reducing peak hour energy use, and by developing the capability for water reuse and recycling.

CVI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Identified through CIP		
Design	No design required		
Environmental Documentation (CEQA/NEPA)	N/A categorically exempt		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

CVII. Project Technical Feasibility

hh. List the water planning documents that specifically identify this project.	
ii. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Identified in Capital Improvement Program
jj. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier: N/A	
26. Have you completed an Urban Water Management Plan and submitted to DWR?	Not Required – Wheatland's is not considered an Urban Water Supplier (UWS) since its current water use is below DWR threshold for UWS.
27. Are you in compliance with AB1420?	N/A
28. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier: N/A	
10. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater: N/A	

12. Has GWMP been completed and submitted for the subject basin?	Yes – See Yuba County Water Agency Ground Water Management Plan.

Marysville Ring Levee Project

MLD-01

CVIII. Project Sponsor Contact Information

Lead Agency/Organization	Marysville Levee District
Name of Primary Contact(s)	Tom Engler, MBK Engineers
Mailing Address	1771 Tribute Road, Suite A Sacramento, CA 95815
Email Address	engler@mbkengineers.com
Phone	916-456-4400
Project Partners/Collaborators	Central Valley Flood Protection Board (CVFPB), United States Army Corps of Engineers (USACE), Yuba County Water Agency

CIX. General Project Information

Project Title	Marysville Ring Levee Project
Project Total Budget	$90.4 million
Project Funding Match	Federal Government= 65% Local = 30%
Project Funding Request	Maximum state funding request would be 70% of total project
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Ring Levee protecting the City of Marysville
Latitude	39.146178
Longitude	-121.591408
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Marysville
Watershed/subwatershed	Feather and Yuba Rivers including Jack Slough
Groundwater Basin	Yuba Groundwater Basin
Project Type	Design/Construction

CX. Project Description

The Marysville Ring Levee (MRL) element was included as a separable element of the 1998 Feasibility Study for the Yuba River Basin Project. As authorized, the Marysville Ring Levee element comprises improvements, including construction of slurry walls and berms to the ring levee that protects the City

of Marysville from flooding from the Yuba River, the Feather River, and Jack Slough. The MRL project includes four distinct "phases" and several are broken down into smaller "stages." A contract was awarded to Raito Inc. of San Leandro in August 2010 with $12 million of American Recovery and Reinvestment Act funding. Construction was completed in 2012, upgrading the levee's fragile northeast reach by installing a seepage cutoff wall to depths over 100 feet.

Design and planning are underway on phases 2, 3 and 4 of the project. Several stages for phases 2 and 3 could be ready for construction by 2014 or 2015. The likely next phase will be to strengthen the levee adjacent to Highway 70 and the Catholic cemetery using a stability berm. Work is slated to begin as early as April 2014. Design work also continues on the remaining phases.

CXI. Project Rationale/Issues Statement

The City of Marysville is protected by a 7.6-mile ring levee (MRL) that reduces flood risk to 12,000 people; and an estimated 3,731 structures including Rideout Memorial, which provides the only level-3 trauma services to more than 100,000 people in the Yuba-Sutter Area. The MRL also reduces flood risk to State Highways 20 and 70 and Union Pacific Railroad, critical statewide transportation routes. Marysville was completely surrounded by floodwaters as recently as 1997.

The MRL project will meet the state's requirement of 200 year-level flood risk for urban areas (1-in-200 flood risk in any given year). The project will surpass that criteria making Marysville one of the lowest at-risk cities in the Central Valley. The Central Valley Flood Protection Board and Marysville Levee District are partners with the Army Corps of Engineers on project construction. The Marysville Levee District maintains the levees and is the local non-federal sponsor, and YCWA provides financial, policy and technical assistance.

Specifically, the project addresses the following regional issues:

Flood Management

- Improve integrated flood management to ensure better emergency preparedness
- Increase flood protection
- Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies.

CXII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The project addresses the following Plan Goals:

	Goal 5: Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	The project addresses the following Plan Objectives: a. Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration b. Support regional and inter-regional collaboration to improve drought and emergency preparedness 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Increased flood protection ▪ Decreased flood insurance premiums ▪ Decreased flood risk

CXIII. Resource Management Strategies

Practice Natural Resources Stewardship	
Economic Incentives (Loans, grants, and water pricing)	Includes State and Federal cost share to leverage local investments.
Improve Flood Management	
Flood Risk Management	Increases flood protection from less than 100- year protection to greater than 250-year protection upon project completion.

CXIV. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project design uses conservative hydrologic and hydraulic assumptions and maintains the excess levee freeboard. These conservative design assumptions provide for increased project resiliency that will accommodate the potential for increased flood flows from climate change.

GHG Emissions Reduction

Construction-related activities comply with the requirements of the Feather River Air Quality Management District, whose standards exceed many other air quality districts' in the state.

Additionally, all disturbed areas during construction will be re-vegetated with California native grasses promoting carbon sequestration.

CXV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning		2010	2010
Design		2010	2015
Environmental Documentation (CEQA/NEPA)		2010	2015
Permitting		2010	2015
Tribal Consultation (if not applicable, indicate by N/A)		2010	Ongoing
Construction/ Implementation		2010	2016

CXVI. Project Technical Feasibility

kk. List the water planning documents that specifically identify this project.	
ll. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water	

Master Plans, Habitat Conservation Plans, etc.)	
mm. List technical reports and studies supporting the feasibility of this project.	Yuba River Basin, California, Marysville Ring Levee Engineering Documentation Report (HDR.USACE, April 12, 2010)
If you are an Urban Water Supplier:	
29. Have you completed an Urban Water Management Plan and submitted to DWR?	N/A
30. Are you in compliance with AB1420?	N/A
31. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier:	
11. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater:	
13. Has GWMP been completed and submitted for the subject basin?	YCWA Groundwater Management Plan

Challenge Water Storage Tank Replacement

NYWD-01

CXVII. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2567

CXVIII. General Project Information

Project Title	Challenge Water Storage Tank Replacement
Project Total Budget	$ 911,500
Project Funding Match	0% - (Disadvantaged Community or DAC)
Project Funding Request	$ 911,500
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 degrees, 29’ 12” N
Longitude	121 degrees, 13’ 03” W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Challenge
Watershed/subwatershed	Project is located in the Yuba River Watershed, but project water is diverted from the Feather River.
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CXIX. Project Description

The North Yuba Water District in Brownsville, California presently stores treated water in several tanks including the Challenge Tank which is a 100,000-gallon wooden structure located in the community of Challenge. Challenge is a small community in Yuba County. The tank provides approximately 230 households in this area with essential domestic water supply and water for emergency fire protection. The Challenge Tank requires replacement due to both its poor condition as well as its inadequate water supply for fire flows.

CXX. Project Rationale/Issues Statement

The project addresses one (1) identified issue.

Infrastructure

This project will replace a deteriorated water storage tank that was constructed in 1966. This is urgently needed to provide a reliable water supply for both domestic use and emergency fire protection.

CXXI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: This project will replace an existing deteriorated treated water tank and increase the capacity to benefit area customers. It will provide sufficient fire flows and significantly increase water system reliability and flexibility. **Goal 2:** The new storage tank will allow system operation to improve water quality. **Goal 5**: This project will increase local storage capacity to provide sufficient fire flows to customers in and near the community of Challenge. **Goal 6:** This project addresses climate vulnerabilities by providing sufficient fire flows **Goal 7**: This project will provide a reliable drinking water and fire flow to a local disadvantaged community (DAC).
Objectives Addressed by Project	**Objective 1.1**: The project will replace an existing aging water supply tank. **Objective 1.4**: The project will improve disaster preparedness in the Region. The Yuba County Multi-Jurisdictional, Multi Hazard Mitigation Plan (Annex T) identified replacement of tanks to meet fire requirements as a Mitigating Action. **Objective 2.6** Support regulatory compliance with current and future state and federal water quality standards **Objective 5.2**: The project will help meet fire flow requirements for the local area. **Objective 6.3** Increase system flexibility and resiliency to adapt to climate variability **Objective 7.1**: The project is located in a DAC.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	**Objective 1.1:** The performance metric used will be implementation of the project. **Objective 1.4**: The performance metric used will be implementation of planning efforts. **Objective 5.2**: The performance metric used will be implementation of planning efforts. **Objective 7.1**: The metric used will be completion of a project for a DAC.

CXXII. Resource Management Strategies

Increase Water Supply	
Surface Storage-- Regional/Local	The project will increase local storage to meet fire flow requirements and enhance system reliability.
Improve Water Quality	
Drinking Water Treatment and Distribution	The new storage tank will allow system operation to improve water quality.

CXXIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The project will increase water storage that could be utilized for enhanced domestic water supply during drought conditions and for fire protection from disasters caused by climate change.

GHG Emissions Reduction

The project would improve overall system-wide energy efficiency by reducing leaks/water losses and, therefore, reducing energy use by pumping and treating less water to meet the water supply needs of this rural community.

CXXIV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Technical Study	February 2008	April 2008
Design	Drawings and Specifications- pending funding	March 2015	August 2015
Environmental Documentation (CEQA/NEPA)	TBD-Pending funding	March 2015	August 2015
Permitting	TBD pending funding	March 2015	August 2015

Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending funding	August 2015	March 2016

CXXV. Project Technical Feasibility

nn. List the water planning documents that specifically identify this project.	
oo. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
pp. List technical reports and studies supporting the feasibility of this project.	Feasibility Study, April 2008
If you are an Urban Water Supplier:	
32. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
33. Are you in compliance with AB1420?	N/A
34. Do you comply with the water meter requirements (CWC Section 525)?	N/A
If you are an Agricultural Water Supplier:	
12. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and therefore is not required to complete an AWMP.
13. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
14. Has GWMP been completed and submitted for the subject basin?	N/A
15. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

Dobbins Oregon House Canal Improvement Project

NYWD-02

CXXVI. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2567

CXXVII. General Project Information

Project Title	Dobbins Oregon House Canal Improvement Project
Project Total Budget	$6,778,000
Project Funding Match	0%- The community of Dobbins is a Disadvantaged Community
Project Funding Request	$6,778,000
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 27’ 33” N
Longitude	121 16’42” W
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Yuba County foothills
County	Yuba
City/Community	Brownsville, Frenchtown, Dobbins and Oregon House
Watershed/subwatershed	Project is located in the Yuba River Watershed, but project water is diverted from the Feather River.
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CXXVIII. Project Description

The North Yuba Water District currently diverts 3,840 acre-feet per year for use for agricultural water supply to its customers in Butte and Yuba Counties. The agricultural water is supplied primarily through the Dobbins Oregon House Canal, a 17-mile hillside canal with four piped inverted

siphons, providing water to the Disadvantaged Communities in the vicinity of Brownsville, Frenchtown, Dobbins and Oregon House.

The existing canal is deteriorated and experiences significant water losses. The canal has reaches where weed removal and annual maintenance requirements has resulted in reduced bank height and reduced freeboard, and reaches where flows are slow, contributing to the high water losses of the system, which average approximately 60%. The project will improve the existing diversion structure and rehabilitate portions of the canal to reduce water losses by 50%. It will also increase the diversion capacity and capacity of the canal, with a decrease in water loss, allowing for an increase in agricultural water supplied to customers.

The project will include the following upgrades:

1. Diversion Structure Improvements – Increase diversion structure capacity.
2. Canal Restoration - Removal of debris accumulation including sediments, plant growth and reshaping approximately 20% of the canal length to restore the canal cross section and minimum freeboard.
3. Canal Improvements – Identification of segments of the canal with the highest water losses and identification of methods for minimizing water loss including consideration of which portions will be lined or piped. It is assumed that mitigating actions will result in a reduction in water losses to 30% of the diversion. Initial consideration assumed that 30% of the canal invert and 60% of the canal wall will be lined.
4. Siphon Replacement – Replacement of the four siphons to improve siphon condition and increase siphon capacity to match the restored canal capacity.

CXXIX. Project Rationale/Issues Statement

The project addresses three (3) identified issues in the Region. How each issue is addressed is described below.

1. Infrastructure: This project will rehabilitate a 17-mile agricultural supply canal to provide an adequate and reliable water supply to the District's customers.
2. Water Use Efficiency/Water Conservation: Currently the ditch loses approximately 60% of the water delivered to the diversion structure. These losses include seepage from the ditch, surge flows that are unable to be used and are passed downstream in the ditch, spills caused by failures of the ditch banks or other facility failures. This is expected to be reduced to 30% after ditch improvements.
3. Climate Change: This project responds to projected climate change impacts on water supply reliability.

CXXX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: This project will improve service to agricultural customers in the Region. Improvements to the ditch are expected to reduce water losses in the ditch from 60% to 30%. **Goal 6**: Improvements to the ditch are expected to reduce water losses from 60% to 30% which will improve the District's ability to meet water demands, without additional water sources. **Goal 7**: Provision of agricultural water at an affordable rate to the customers in this area is important to the success of this project.

Objectives Addressed by Project	**Objective 1.5**: The project will reduce water losses in the Ditch therefore increasing available water for agricultural uses in the District. **Objective 6.3**: The project will improve the District's resiliency to adapt to climate variability through a decrease in water loss in the ditch. **Objective 7.1**: The project will address water supply needs in a DAC.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	**Objective 1.1:** The performance metric used will be acre-feet per year (AFY) conserved. Average water loss in the canal between 2000-2010 was 1,400 AFY. Improvements to the canal would be expected to reduce this value by 50%, with a savings of approximately 700 AFY. **Objective 6.3**: The performance metric used will be implementation of the project.

CXXXI. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	The project will improve agricultural water use efficiency through a reduction in losses in the water supply system.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Local and regional water conveyance would be significantly enhanced.
Increase Water Supply	
Surface Storage-- Regional/Local	Reduction of water losses in the system from 60% to 30%

CXXXII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project helps the region adapt to the effects of climate change through conservation of water in the DOHC. The District currently loses approximately 60% of the water diverted into the canal. Modifications to the canal are expected to reduce this water loss by approximately 50%. The project is used in the summer months for agricultural diversions and is not expected to be largely affected by variations in weather events. Identification of climate change effects that could affect the canal capacity, water availability and other issues will be considered during the design of the canal improvements.

GHG Emissions Reduction

Considerations were made to select a project alternative that offers the greatest reduction in leakage and evaporation per mile among other project choices. Further construction-related GHG emissions reduction strategies will be considered in the design stage of project development.

CXXXIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Project Feasibility Study	January 2012	May 2012
Design	Drawings and Specifications	March 2015	October 2015
Environmental Documentation (CEQA/NEPA)	TBD- awaiting funding	March 2015	July 2016
Permitting	TBD- awaiting funding	March 2015	July 2016
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	TBD- awaiting funding	July 2016	November 2016

CXXXIV. Project Technical Feasibility

qq. List the water planning documents that specifically identify this project.	North Yuba Water District Irrigation and Domestic Water Delivery Feasibility Study
rr. List the adopted planning documents the proposed project is consistent with (e.g., General	

Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
ss. List technical reports and studies supporting the feasibility of this project.	North Yuba Water District Irrigation and Domestic Water Delivery Feasibility Study
If you are an Urban Water Supplier:	
35. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
36. Are you in compliance with AB1420?	N/A
37. Do you comply with the water meter requirements (CWC Section 525)?	N/A
38. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
14. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and therefore is not required to complete an AWMP.
15. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
16. Has GWMP been completed and submitted for the subject basin?	N/A
17. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

Forbestown Ditch Improvement Project

NYWD-03

CXXXV. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2703

CXXXVI. General Project Information

Project Title	Forbestown Ditch Improvement Project
Project Total Budget	$4,650,000
Project Funding Match	0% - Disadvantaged Community (DAC)
Project Funding Request	$4,650,000 – though the project may be phased to accommodate a variety of budgetary restrictions.
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 32’ 52” N
Longitude	121 11’ 42” W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba/Butte
City/Community	Forbestown, Rackerby, Brownsville, Dobbins, Challenge, and Oregon House
Watershed/subwatershed	Project is located in the Yuba River Watershed. Project water is diverted from the South Fork of the Feather River via a penstock operated by the South Feather Water and Power Authority.
Groundwater Basin	Hard rock aquifer
Project Type	Facility Construction Best Management Practices

CXXXVII. Project Description

The North Yuba Water District receives 100% of its potable water supply and a portion of its irrigation water supply through the Forbestown Ditch, a 10-mile long unlined, open ditch. This conveyance facility was originally constructed in the 1860s, and since that time has provided irrigation and domestic water to the residents in the communities of Forbestown, Rackerby, Brownsville, Dobbins, Challenge, and Oregon House. The service area is predominantly considered a disadvantaged community (DAC).

The Forbestown Ditch is in need of major repair/replacement and is subject to facility failures due to erosion. This project will replace the existing unlined ditch with a pipeline. The outcome of this conversion will include the following benefits:

- **Reduce water losses in the ditch**. Current losses are approximately 50% of the water diverted at the intake, and are expected to drop to below 5% after ditch lining and pipe installation (the solution will likely be a combination of both of these practices). This will result in a savings of at least 4,120 acre-feet on an annual basis, and up to 7,620 AF.
- **Improve reliability of supply to the District water treatment plant**. Extreme weather events including winter storms and fires have historically caused ditch outages. Conversion of the ditch to a pipeline with a complement of lined areas is expected to reduce these outages, saving water, agency staff time, and financial resources.
- **Improve water quality of the water delivered to the District treatment plant**. Water quality of the open ditch can be affected by a variety of issues such as fires, spills, or local livestock grazing practices. This can result in issues such as high turbidity or bacterial contamination. Conversion to a pipe along the most sensitive and/or accessible areas of the waterway will reduce water quality impacts to the water supply.
- **Improve facility safety**. The current ditch is accessible by the public and, in some areas, to a children's summer camp. Conversion to a pipe in areas of public access will remove any safety issues that may be associated with an open ditch conveyance system.

CXXXVIII. Project Rationale/Issues Statement

The project addresses the following seven (7) issues:

4. Infrastructure: This project will retrofit the 150-year-old ditch/flume system with a pipeline to provide an adequate and reliable water supply conveyance system for North Yuba Water District customers.
5. Water Use Efficiency/Water Conservation: Currently the ditch loses approximately 50% of the water delivered at the ditch head gate. Modeling the system shows that ditch piping/lining will save 4,120 AF annually on the low end, and up to 7,620 AF on the high end on an annual basis. These losses include seepage from the ditch, surge flows required for conveyance that are unable to be used, spills caused by failures of the ditch banks, or other facility failure. Following ditch piping/lining, losses are expected to drop to less than 5%.
6. Water Quality Contamination: The project will mitigate for contamination that could be caused by urban and agricultural run-off through piping the system. This will mitigate any issues regarding water quality impacts of local grazing or urban impacts as well as impacts from fires and severe winter storms. In addition, piping the ditch through populated areas will minimize the risk of wastewater infiltration via septic system seepage.
7. Environmental Flows: By minimizing canal losses, more water can stay in the stream system, including the Feather River, Orleava Creek, and New York Creek. This will have positive effects on over all flows, as well as on temperature.
8. Land Use and Land Conversion: Through lining the Forbestown Ditch, the NYWD will be better able to provide irrigation water at a consistent price and amount to irrigators in the Yuba watershed foothills. Currently, water management arrangements mandate that the NYWD pay power prices (upwards of $100/AF) for all water over 3,700 AF available at SF-14. This makes the water financially unavailable to the NYWD irrigators. In addition, canal capacity sometimes precludes agricultural deliveries. Piping of the canal will enable irrigators to obtain adequate

water supplies at reasonable prices, allowing them to continue using the land for agriculture rather than selling it for development or other higher-value land uses.

9. Regulatory Compliance: The State Water Resources Control Board is in the process of reviewing the extension of time for NYWD water rights and permits; a preliminary finding is that these extensions will be contingent upon implementing additional efficiencies in the Forbestown Ditch. NYWD rights will potentially be at stake without ditch lining.
10. Climate Change: Adapting to climate change requires adding flexibility into water management systems. The impact in the Yuba Region will be on multiple levels, but includes decreased snowpack and increased demands for adequate instream flow in temperatures low enough to allow for fish survival. Through the lining of Forsbestown Ditch, the NYWD will achieve the following efficiencies and adaptive efforts:
    - Increased efficiencies in the watershed results in additional in-stream flows, generally lowering temperatures and allowing for greater habitat availability;
    - Increased instream flow also allows for additional power production capacity – more water going down the penstock means more water at the power plant; and
    - Lowering losses means that the same amount of water may be used to do more work.

    All of these efficiencies lend themselves to increased flexibility in the face of climate change impacts.

CXXXIX.Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: The project will retrofit the existing aging water supply ditch to a pipeline to improve the sole water supply source for the NYWD. **Goal 2**: The project will address contamination risk of the potable water source for the NYWD communities, including from septic seepage and overland flow into the Forbestown Ditch. **Goal 6**: The project will improve water conservation through a decrease in water infrastructure water losses, therefore improving the District's resiliency to climate change. **Goal 4**: Adequate water at a reasonable price is essential for agricultural activity to continue in the region. This project will manage NYWD resources to allow for continued water supply to irrigation customers. **Goal 5**: Drought preparedness requires efficiency; minimizing leakage in the Forbestown Ditch will allow for the NYWD to supply water of adequate supply and quality even in drought conditions – something that is currently not secure. **Goal 7**: The majority of the area served by the District is considered a disadvantaged community (DAC).
Objectives Addressed by Project	**Objective 1.1**: The project will retrofit existing aging water supply ditch to a pipeline that will significantly increase reliability for the only source of water to the District. The existing ditch is subject to outages along side slopes and across wooden trestles, and is vulnerable to catastrophic wildfire and accidental contamination events from spillage and runoff. **Objective1.2**: The project will greatly reduce water losses in the Forbestown Ditch from approximately 50% to less than about 5% with piping.

	Objective 1.4: The project will improve disaster preparedness in the Region. The Yuba County Multi-Jurisdictional, Multi Hazard Mitigation Plan (Annex T) identified replacement of open ditches throughout the district with pipes as a Mitigating Action to reduce the affects of severe winter storms to the District. This will also improve water quality impacts to the potable water supply associated with catastrophic fires in the Region. **Objective 1.6**: The project will significantly increase available water for agricultural uses in the District as a result of reduced leakage and increased capacity. **Objective 1.7**: The District's water rights mandate additional conservation on Forbestown Ditch. **Objective 2.6**: Potable water quality must be protected, and encasing an otherwise open ditch addresses quality issues of sediment and overland flow, as well as accidental dumping at crossings. **Objective 4.5**: Increasing Forbestown Ditch efficiency will allow NYWD to deliver water to irrigators even in times of great scarcity. Increasing efficiencies will decrease the amount of water the District must divert to get water all the way down the ditch and canal system to irrigators at the end of the line: this decreases costs associated with water purchase by both the District and the irrigators. **Objective 6.3**: The project will improve the District's resiliency to adapt to climate variability through a decrease in water loss in the ditch and increasing the reliability of the conveyance system to withstand extreme weather events. Climate variability could lead to a decrease in water availability. Groundwater in the Region is not readily available and therefore improvement of the surface water supply infrastructure is important to the District's future resiliency to climate change. **Objective 7.1**: The project will address water supply needs in a DAC and will increase the capacity of District staff to manage system losses and supply. Increased water consumption by the SFWPA has hurt the NYWD financially due to the District's responsibility for all water losses along Forbestown Ditch. This financial drain is uncontrollable without ditch lining, and these losses drive the NYWD budget and manpower.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	**Objective 1.1**: Modeling the system shows that ditch piping/lining will save 4,120 AF annually on the low end, and up to 7,620 AF on the high end on an annual basis. In addition, these infrastructure upgrades will decrease maintenance requirements on the Forbestown ditch by more than 50%. **Objective1.2:** As noted above, it is expected that at least 4,120 AF per annum of water supply will be conserved through installation of the pipeline. **Objective 1.4**: The performance metric used will be implementation of planning efforts.

	Objective 1.6: It is expected that approximately 3,328 AF per annum of water supply will be conserved during the agricultural season to allow for additional water to be sent to agricultural customers in the District. Objective 1.7: The performance metric for meeting regulatory requirements will be met by additional conservation and diversion point versus WTP metering to check losses. Objective 2.6: The metric for this objective will be the covered portions of the ditch in areas of increased risk to quality. Objective 4.5: Increased water quantity availability to irrigators during drought years. **Objective 6.3**: The performance metric used will be implementation of the project. **Objective 7.1**: Completion of this project in the DAC region served by the NYWD will be the performance metric for this objective.

CXL. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	Increase water use efficiency through a decrease in water losses in the Ditch that supplies water for agricultural use.
Urban Water Use Efficiency	Increase water use efficiency through a decrease in water losses in the Ditch that supplies water for urban use.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Increase water use efficiency supplying urban and agricultural water users.
Improve Water Quality	
Drinking Water Treatment and Distribution	Piping the open ditch will improve water quality through decreased turbidity and decrease contamination from local agricultural or other contamination sources.
Pollution Prevention	Lining key areas of the Forbestown Ditch will minimize the risk to potable water source for the NYWD.
Urban Runoff Management	Piping the ditch in key areas will minimize the contamination potential of urban runoff and septic seepage into the currently unlined ditch.
Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Increasing the efficiency of Forbestown Ditch will steward the continued use of land in the NYWD for agriculture though allowing water to flow down the ditch for agricultural uses in a broader array of years (including drought years such as this one).

CXLI. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term increase in available water supply from leakage reduction
- Achieve long term increase in available water supply from leakage reduction

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The North Yuba Water District is located in the foothills portion of the Yuba Region, which is underlain by a fractured rock aquifer. This aquifer may, at best, yield small quantities of water to an individual well. The District therefore relies on surface water as its sole source for water supply. To improve its resiliency to climate change, this project will replace an unlined ditch subject to approximately 50% water losses with a pipeline that is expected to result in water losses of less than approximately 5%. This allows the District to maintain their current level of service to customers with a decrease in consumptive water use. Reducing consumptive water use improves resiliency to climate change variability, the effects of which may decrease availability of surface water through decrease in snowpack and increase in flash precipitation events.

GHG Emissions Reduction

Considerations were made to select a project alternative that offers the greatest reduction in leakage and evaporation per mile among other project choices. Further construction-related GHG emissions reduction strategies will be considered in the design stage of project development.

CXLII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Project Feasibility Study	April 2009	November 2009

Design	Plans and Specifications	March 2015	August 2015
Environmental Documentation (CEQA/NEPA)	TBD- Pending funding	March 2015	August 2016
Permitting	TBD- Pending Funding	March 2015	August 2016
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending Funding	September 2015	August 2016

CXLIII. Project Technical Feasibility

tt. List the water planning documents that specifically identify this project.	Forbestown Ditch Improvements Feasibility Study – 5 November 2009
uu. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
vv. List technical reports and studies supporting the feasibility of this project.	Forbestown Ditch Improvements Feasibility Study – 5 November 2009
If you are an Urban Water Supplier:	
39. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
40. Are you in compliance with AB1420?	Not applicable due to the size of the District.
41. Do you comply with the water meter requirements (CWC Section 525)?	Not applicable due to the size of the District and NYWD's water supply.
42. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
16. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and, therefore, is not required to complete an Agriculture Water Management Plan (AWMP).

17. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
18. Has GWMP been completed and submitted for the subject basin?	N/A: the NYWD does not use groundwater and therefore does not participate in the Yuba Basin process.
19. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

Forbestown Water Storage Tank and Pipeline Replacement

NYWD-04

CXLIV. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2567

CXLV. General Project Information

Project Title	Forbestown Water Storage Tank and Pipeline Replacement
Project Total Budget	$ 1,269,100
Project Funding Match	0% - (Disadvantaged Community or DAC)
Project Funding Request	$ 1,269,100
Can a detailed cost estimate be provided upon request?	Yes – This important project was designed and competitive bids received, but construction has not occurred due to lack of available funding.
Latitude	39 degrees, 31’ 13” N
Longitude	121 degrees, 16’ 50” W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Butte
City/Community	Forbestown
Watershed/subwatershed	Project is located in the Yuba River Watershed, but project water is diverted from the Feather River.
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CXLVI. Project Description

The North Yuba Water District in Brownsville, CA presently stores treated water in several tanks including the Forbestown Tank which is a 100,000-gallon bolted steel structure constructed in 1967 located in the community of Forbestown. The community of Forbestown is a small disadvantaged community in Butte County. The tank and pipeline provide approximately 700 households with a reliable water supply and fire protection.

The Forbestown Tank requires replacement due to both its poor condition as well as its inadequate water supply for fire flows. In addition, approximately 4,400 lineal feet of 6-inch water transmission main connecting this tank to the distribution system needs to be replaced with 8-inch pipeline due to poor condition and to meet fire flow capacity requirements.

Design for this project was completed in 2011. The project includes environmental, permitting and construction of a 400,000 gallon tank and of pipeline installation as well as all associated appurtenances and site requirements.

CXLVII. Project Rationale/Issues Statement

The project addresses two (2) identified issue.

11. Infrastructure: This project will retrofit the deteriorated water storage tank constructed in 1967 to provide a reliable water supply to customers throughout the District service area.

Climate Change: This project addresses climate vulnerabilities by responding to projected climate change impacts on water supply reliability and public safety.

CXLVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: This project will replace an existing deteriorated treated water tank and increase the capacity to benefit customers throughout the District. It will provide sufficient fire flows and significantly increase water system reliability and flexibility. **Goal 5**: This project will increase local storage capacity to provide sufficient fire flows to Forbestown and other communities within the District service area. **Goal 6:** This project addresses climate vulnerabilities by increasing water supply reliability and in providing increased fire safety. **Goal 7**: This project will provide a reliable drinking water and fire flow to local disadvantaged communities (DACs).
Objectives Addressed by Project	**Objective 1.1**: The project will replace an existing aging water supply tank and pipeline. **Objective 1.4**: The project will improve disaster preparedness in the Region. The Yuba County Multi-Jurisdictional, Multi Hazard Mitigation Plan (Annex T) identified replacement of tanks to meet fire requirements as a Mitigating Action. **Objective 5.2**: The project will help meet fire flow requirements for the District service area. **Objective 6.3:** The project increases water system flexibility in adapting to climate variability **Objective 7.1**: The project is located in a DAC.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible,	**Objective 1.1:** The performance metric used will be implementation of the project. **Objective 1.4**: The performance metric used will be implementation of planning efforts.

provide a quantitative measurement reflecting successful project outcomes.	**Objective 5.2**: The performance metric used will be implementation of planning efforts. **Objective 7.1**: The metric used will be completion of a project for a DAC.

CXLIX. Resource Management Strategies

Increase Water Supply	
Surface Storage-- Regional/Local	The project will increase local storage to meet fire flow requirements and significantly improve reliability of available water supply.

CL. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation
The project will increase water storage that could be utilized for enhanced domestic water supply during drought conditions and for fire protection from disasters caused by climate change.

GHG Emissions Reduction
The project would improve overall system-wide energy efficiency by reducing leaks/water losses and, therefore, reducing energy use by pumping and treating less water to meet the water supply needs of this disadvantaged community.

CLI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Technical Study Completed	February 2008	April 2008
Design	100% Design Completed	July 2011	February 2012
Environmental Documentation (CEQA/NEPA)	CEQA/NEPA Documents Completed	July 2011	February 2012
Permitting	TBD- pending funding	July 2011	February 2012

Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending funding	March 2015	July 2015

CLII. Project Technical Feasibility

ww. List the water planning documents that specifically identify this project.	
xx. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
yy. List technical reports and studies supporting the feasibility of this project.	Project plans and specifications – Kennedy/Jenks Consultants – February 2012
If you are an Urban Water Supplier:	
43. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
44. Are you in compliance with AB1420?	N/A
45. Do you comply with the water meter requirements (CWC Section 525)?	N/A
46. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
18. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and therefore is not required to complete an AWMP.
19. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
20. Has GWMP been completed and submitted for the subject basin?	N/A

21. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

New York Flat Road Water Transmission Main

NYWD-05

CLIII. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2567

CLIV. General Project Information

Project Title	New York Flat Road Water Transmission Main
Project Total Budget	$1,556,250
Project Funding Match	0% - (Disadvantaged Community or DAC)
Project Funding Request	$1,556,250
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 degrees, 30’, 56” N
Longitude	121 degrees, 15’, 53” W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba/Butte
City/Community	Forbestown
Watershed/subwatershed	Yuba River
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CLV. Project Description

The North Yuba Water District in Brownsville, CA presently conveys treated water from the District Water Treatment Plant (WTP) to customers through various transmission mains and distribution pipelines. The New York Flat Water Transmission Main is currently deteriorated and requires frequent maintenance. The pipeline is also undersized and additional capacity is required to meet fire flow supply requirements. The proposed project is to replace approximately 1,700 lineal feet of 6-inch and 8-inch piping from the District WTP Clearwell to New York Flat Road. The existing water transmission main on New York Flat Road approximately 12,700 lineal feet from this location to La Porte Road will be replaced

with a 12-inch pipeline. At this location, it will connect with an existing pipeline to provide a reliable supply of water for both domestic use and emergency fire protection. The pipeline is critical since it is the only treated water main conveying treated water to District distribution system.

CLVI. Project Rationale/Issues Statement

The project addresses one (1) identified issue.

Infrastructure: This project will replace a vital water transmission main to provide a reliable water supply to the North Yuba Water District customers. The existing pipeline is deteriorated and unreliable. Numerous leaks currently incur that result in costly repairs and water loss.

CLVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: This project will replace and increase the capacity of a treated water transmission main to provide Forbestown with a reliable water supply and sufficient fire flows. **Goal 5**: This project will increase treated water conveyance capacity to provide sufficient domestic and fire flows to the community of Forbestown. **Goal 7**: This project will provide a reliable drinking water and fire flow to the disadvantaged community (DAC) of Forbestown.
Objectives Addressed by Project	**Objective 1.1**: The project will replace an existing aging water supply pipeline. **Objective 5.2**: The project will help meet fire flow requirements for the City of Forbestown. **Objective 7.1**: The project is located in an DAC.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	**Objective 1.1:** The performance metric used will be implementation of the project. **Objective 1.4**: The performance metric used will be implementation of planning efforts. **Objective 7.1**: The metric used will be completion of a project for a DAC.

CLVIII. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	The project will enhance water system reliability and reduce leakage.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	The project will enhance local water conveyance.

CLIX. Statewide Priorities

Drought Preparedness

- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

This project ensures greater water supply reliability to disadvantaged rural communities that are more vulnerable to the effects of climate change, particularly in cases of extreme and exceptional drought. Also, the replacement of the transmission main will increase water use efficiency and decrease system water losses, thereby reducing long term water demand. Additionally, the project provides better fire protection by ensuring fire flows to forested communities at threat of more frequent catastrophic fire events under climate change projections.

GHG Emissions Reduction

Considerations were made to select a project alternative that offers the greatest reduction in water losses/leakages. Further construction-related GHG emissions reduction strategies will be considered in the design stage of project development.

CLX. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Technical Study	February 2008	April 2008
Design	Drawings and Specifications.	March 2015	September 2015
Environmental Documentation (CEQA/NEPA)	TBD- pending funding	March 2015	September 2015
Permitting	TBD- pending funding	March 2015	September 2015
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending Funding	September 2015	March 2016

CLXI. Project Technical Feasibility

zz. List the water planning documents that specifically identify this project.	Near-Term and Ultimate Water System Improvements Recommendations Report – April 2008
aaa. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
bbb. List technical reports and studies supporting the feasibility of this project.	Near-Term and Ultimate Water System Improvements Recommendations Report – April 2008
If you are an Urban Water Supplier:	
47. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
48. Are you in compliance with AB1420?	N/A
49. Do you comply with the water meter requirements (CWC Section 525)?	N/A
50. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
20. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and therefore is not required to complete an AWMP.
21. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
22. Has GWMP been completed and submitted for the subject basin?	N/A
23. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

Rackerby Water Storage Tank Replacement

NYWD-06

CLXII. Project Sponsor Contact Information

Lead Agency/Organization	North Yuba Water District (District or NYWD)
Name of Primary Contact(s)	Jeff Maupin, General Manager
Mailing Address	P.O. Box 299 Brownsville, CA 95919
Email Address	jmaupin@nywd.org
Phone	(530) 675-2567

CLXIII. General Project Information

Project Title	Rackerby Water Storage Tank Replacement
Project Total Budget	$ 911,500
Project Funding Match	0% - (Disadvantaged Community or DAC)
Project Funding Request	$ 911,500
Can a detailed cost estimate be provided upon request?	Yes
Latitude	39 degrees, 26’ 36” N
Longitude	121 degrees, 19’ 56” W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba/Butte
City/Community	Rackerby Area
Watershed/subwatershed	Project is located in the Yuba River Watershed, but project water is diverted from the Feather River.
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CLXIV. Project Description

The North Yuba Water District in Brownsville, California presently stores treated water in several tanks including the Rackerby Tank which is a 100,000-gallon bolted steel structure located in the Rackerby area of Yuba County. The tank provides approximately 70 households in this area with essential domestic water supply and water for emergency fire protection. The Rackerby Tank requires replacement due to both its poor condition as well as its inadequate water supply for fire flows.

CLXV. Project Rationale/Issues Statement

The project addresses two (2) identified issues.

12. Infrastructure: This project will replace a deteriorated water storage tank that was constructed in 1978. This is urgently needed to provide a reliable water supply for both domestic use and emergency fire protection.
13. Climate Change: This project responds to projected climate change impacts on water supply reliability and public safety by improving a reliable water supply and enhancing fire protection.

CLXVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: This project will replace an existing deteriorated treated water tank and increase the capacity to benefit area customers. It will provide sufficient fire flows and significantly increase water system reliability and flexibility. **Goal 5**: This project will increase local storage capacity to provide sufficient fire flows to customers in and near the community of Challenge. **Goal 6:** This project addresses climate vulnerabilities by improving water supply reliability and enhancing fire protection **Goal 7**: This project will provide a reliable drinking water and fire flow to a local disadvantaged community (DAC).
Objectives Addressed by Project	**Objective 1.1**: The project will replace an existing aging water supply tank. **Objective 1.4**: The project will improve disaster preparedness in the Region. The Yuba County Multi-Jurisdictional, Multi Hazard Mitigation Plan (Annex T) identified replacement of tanks to meet fire requirements as a Mitigating Action. **Objective 5.2**: The project will help meet fire flow requirements for the District service area. **Objective 6.3:** This project increases system flexibility and resiliency to adapt to climate variability **Objective 7.1**: The project is located in a DAC.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	**Objective 1.1:** The performance metric used will be implementation of the project. **Objective 1.4**: The performance metric used will be implementation of planning efforts. **Objective 5.2**: The performance metric used will be implementation of planning efforts. **Objective 7.1**: The metric used will be completion of a project for a DAC.

CLXVII. Resource Management Strategies

Increase Water Supply	
Surface Storage-- Regional/Local	The project will increase local storage to meet fire flow requirements and significantly improve reliability of available water supply.

Improve Water Quality	
Drinking Water Treatment and Distribution	The new storage tank will allow system operation to improve water quality.

CLXVIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The project will increase water storage that could be utilized for enhanced domestic water supply during drought conditions and for fire protection from disasters caused by climate change.

GHG Emissions Reduction

The project would improve overall system-wide energy efficiency by reducing leaks/water losses and, therefore, reducing energy use by pumping and treating less water to meet the water supply needs of this rural, disadvantaged community.

CLXIX. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Technical Study	February 2008	April 2008
Design	Drawings and Specifications	March 2015	August 2015
Environmental Documentation (CEQA/NEPA)	TBD- pending funding	March 2015	August 2015
Permitting	TBD- pending funding	March 2015	August 2015
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Pending Funding	August 2015	March 2016

CLXX. Project Technical Feasibility

ccc. List the water planning documents that specifically identify this project.	
ddd. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
eee. List technical reports and studies supporting the feasibility of this project.	Feasibility Study, April 2008
If you are an Urban Water Supplier:	
51. Have you completed an Urban Water Management Plan and submitted to DWR?	NYWD supplies less than 3,000 AF to its domestic customers and has less than 3,000 domestic connections. Therefore, NYWD is not required to complete an UWMP.
52. Are you in compliance with AB1420?	N/A
53. Do you comply with the water meter requirements (CWC Section 525)?	N/A
54. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
22. Have you completed and submitted an AWMP?	NYWD does not provide agricultural water supplies to over 10,000 acres and therefore is not required to complete an AWMP.
23. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
24. Has GWMP been completed and submitted for the subject basin?	N/A
25. If not, will the GWMP be completed within one year of the grant submittal date?	N/A

Recycled Water Distribution System

OPUD-01

CLXXI. Project Sponsor Contact Information

Lead Agency/Organization	Olivehurst Public Utility District (OPUD)
Name of Primary Contact(s)	Timothy Shaw, General Manager/ John Tillotson, Director of Public Works
Mailing Address	PO Box 670 Olivehurst, CA 95961
Email Address	opudmgr@opud.org / Jtillotson@opud.org
Phone	530-743-0317 / 530-743-8573

CLXXII. General Project Information

Project Title	Recycled Water Distribution System
Project Total Budget	$3,352,978 Phase 1, feasibility study and design - $410,298 Phase 2, ½ project construction - $1,471,340 Phase 3, ½ project construction -$1,471,340
Project Funding Match	The community of Olivehurst is a Disadvantaged Community (DAC). Because of the DAC designation, we are requesting OPUD have a 0% match for this project.
Project Funding Request	$3,352,978 Phase 1, feasibility study and design - $410,298 Phase 2, ½ project construction - $1,471,340 Phase 3, ½ project construction -$1,471,340
Can a detailed cost estimate be provided upon request?	Yes
Latitude	Varies – District Wide
Longitude	Varies – District Wide
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Unincorporated, Olivehurst CA, Several locations
County	Yuba
City/Community	Olivehurst
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Planning Facility Construction

CLXXIII. Project Description

OPUD is committed to Wastewater Management and Water Use Efficiency. Our project would improve the wastewater management and manage water quality while we increase our water efficiency and water conservation by creating a Recycled Water Distribution System. This project is to plan, design, and construct the recycled water distribution system to irrigate parks, streetscapes, and additional areas within the OPUD service area**.**

OPUD's Wastewater Treatment Plant (WWTP) currently discharges tertiary treated effluent to the Western Pacific Interceptor Canal. The OPUD WWTP currently has capacity of 3 mg (million gallons) per day with plans and permitting to expand to 5 mg per day. The water quality meets Title 22 requirements for unrestricted irrigation. Currently, there is no infrastructure in place to utilize the recycled water. The largest benefit of recycled water may be achieved by irrigating parks, large landscaped areas, and streetscapes. Reuse of the effluent was considered during the WWTP plant upgrade, but 100% reuse was not cost effective due to winter time storage; however, a partial reuse scenario can be used to meet the summer irrigation needs in the area.

The project would be phased as follows:

Phase I – Recycle Water Feasibility Study. This effort would look at pipeline routes and high demand users.

Phase II – Nexus Study. The phase would evaluate the funding mechanisms between OPUD, Yuba County, and future development to share the capital costs based on the benefits received.

Phase III – Design of Recycled Distribution System.

Phase IV – Construction of Recycled Water Distribution System.

CLXXIV. Project Rationale/Issues Statement

Recycled Water Distribution System project would address many of the conflicts and issues that are a priority in the region. This project would improve wastewater management by utilizing the recycled water instead of discharging into the waterways. This water would be used for irrigation. Therefore, water use would be more efficient and the groundwater would not be overused.

This project would conserve water due to reductions in peak potable water treatment and distribution during dry seasons, reduce wastewater discharge compliance costs and provide a reliable source of irrigation water. The project specifically addresses the following identified regional issues:

Infrastructure
Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Wastewater Management
Improve wastewater management and manage water quality impacts from spills and discharges while addressing the rising costs of operation and regulatory compliance.

Water Use Efficiency/

Water Conservation
Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal sector

Water Quality Contamination: Effluent Discharge
Maintain and improve water quality by mitigating the impacts of effluent discharge

Groundwater
Minimizes dependency and potential over-use of groundwater

Regulatory Compliance
Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs

Climate Change
Respond to projected climate change impacts on water supply reliability and water quality

CLXXV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions; **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region.
Objectives Addressed by Project	1.1 Improve the water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and developing new infrastructure, were necessary; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies municipal water conservation, water recycling and reuse; 2.2 Minimize water quality impacts from effluent discharge 6.3 Increase system flexibility and resiliency to adapt to climate variability.
What performance metrics will be used to demonstrate that objectives are being	

met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	Groundwater savings with current parks, schools and landscape in the area would be about 100 million gallons annually. Once the area builds out it would easily be double that.

CLXXVI. Resource Management Strategies

Increase Water Supply	
Recycled Municipal Water	Recycle municipal wastewater for use in irrigation of parkland, schools and landscaping
Improve Water Quality	
Matching Water Quality to Use	Reuse municipal water for non-potable irrigation purposes
Pollution Prevention	Decrease water quality impacts from effluent discharge

CLXXVII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape efficiencies
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

<u>Climate Change Adaptation</u>

This project will adapt to climate change by using recycled water for irrigation of parks, schools and landscape areas thereby saving groundwater for use in a drought. Additionally, groundwater is pumped twice before use while the recycled water system could be designed to pump once saving energy.

GHG Emissions Reduction

This project increases conservation and reduces water use by developing a municipal water recycling program and, therefore, reducing the energy and emissions related to water delivery with increased metering, rate incentives for conservation and education included with utility bills to reduce consumption.

CLXXVIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Preliminary conceptual planning for feasibility of reclaimed water		2012
Design	TBD- awaiting funding		
Environmental Documentation (CEQA/NEPA)	TBD- awaiting funding		
Permitting	TBD- awaiting funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting Funding		

CLXXIX. Project Technical Feasibility

fff. List the water planning documents that specifically identify this project.	Urban Water Management Plan
ggg. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Urban Water Management Plan Yuba County Groundwater Management Plan
hhh. List technical reports and studies supporting the feasibility of this project.	Study commissioned by CH2MHill

If you are an Urban Water Supplier:	
55. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes
56. Are you in compliance with AB1420?	Yes
57. Do you comply with the water meter requirements (CWC Section 525)?	Yes
If you are an Agricultural Water Supplier:	
24. Have you completed and submitted an AWMP?	N/A
25. If not, will you complete an AWMP prior to receiving project funding?	N/A
If the project is related to groundwater:	
26. Has GWMP been completed and submitted for the subject basin?	Yes

Olivehurst Water Main Replacement

OPUD-02

CLXXX. Project Sponsor Contact Information

Lead Agency/Organization	Olivehurst Public Utility District (OPUD)
Name of Primary Contact(s)	Timothy Shaw, General Manager/ John Tillotson, Director of Public Works
Mailing Address	PO Box 670 Olivehurst, CA 95961
Email Address	opudmgr@opud.org / Jtillotson@opud.org
Phone	530-743-0317 / 530-743-8573

CLXXXI. General Project Information

Project Title	Olivehurst Steel Water Main Replacement
Project Total Budget	**$2,388,166** Phase 1, design - $191,053 Phase 2, replace 7000 feet of steel water main - $1,098,558 Phase 3, replace 7000 feet of steel water main - $1,098,558
Project Funding Match	The community of Olivehurst is Disadvantaged Community (DAC). Because of the DAC designation, we are requesting OPUD have a 0% match for this project. OPUD is in the process of evaluating a rate increase to meet current regulatory demands. Grant funding for this project would significantly reduce the amount needed in the rate increase for this disadvantaged community.
Project Funding Request	**$2,388,166** Phase 1, design - $191,053 Phase 2, replace 7000 feet of steel water main - $1,098,558 Phase 3, replace 7000 feet of steel water main - $1,098,558
Can a detailed cost estimate be provided upon request?	Yes
Latitude	Varies – District Wide in Historic Olivehurst - (Water System # 5810003)
Longitude	Varies – District Wide in Historic Olivehurst - (Water System # 5810003)
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Unincorporated Yuba County, Olivehurst CA, Several locations
County	Yuba

City/Community	Olivehurst
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Planning Facility Construction

CLXXXII. Project Description

This project would replace 14,000 feet of steel water main with 8" diameter C-900 PVC plastic pipe. Additionally, the project would include 25 fire hydrants, 69 8" valves and 40 tie-in locations to existing water main lines. This project would serve the direct needs of residential customers only within the Olivehurst area by providing an adequate supply of safe and clean drinking water to these residents.

The project is in OPUD's Capital Improvement Plan and is in the planning phase. A design would need to be completed before project construction.

This aged and outdated infrastructure serves approximately 10,000 residents in the disadvantaged community of Olivehurst which equates to about 50% of our customer base.

Additionally, OPUD would install water meters at all locations within the project area and replace some failing laterals (at OPUD's expense) during this project as it would be very efficient to do this during the project construction. This would help promote water conservation.

This project will also increase fire flow by the upsizing of the mains and updating of the hydrants, making safety a key benefit of this project.

CLXXXIII. Project Rationale/Issues Statement

This aging infrastructure is in need of replacement. The first steel water mains were installed in 1948, with the majority of the steel water main s being installed in the 1940's and 1950's. These steel mains are in poor condition and have been in service well past their life expectancy.

There are water quality issues stemming from the steel mains. We frequently have calls of cloudiness and particles in the system by our customers. We send staff out to flush the system via fire hydrants in the areas of concern. This then becomes a water use efficiency and water conservation concern due to the frequent flushing. Additionally, less chlorine would be used due to system flushing.

The steel mains also leak frequently, requiring patch upon patch to keep the system operating. Replacement of the mains would help to conserve water. This can be readily verified by comparing the water use in this system to the water use in our Southern system which is new.

This project would help provide safe drinking water to a Disadvantaged Community by bringing a portion of the aging water system up to current regulatory standards. The project specifically addresses the following identified regional issues:

Infrastructure
replace and retrofit aging infrastructure to ensure adequate and reliable water supply and improved water quality

Water Use Efficiency/

Water Conservation
implement practices to increase water use efficiency *and* water conservation in municipal sectors

Groundwater
Protect groundwater and groundwater-dependent ecosystems, especially to address the projected impacts of climate change

Regulatory Compliance
Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs

CLXXXIV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions; **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region.
Objectives Addressed by Project	1.1 Improve the water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and developing new infrastructure, were necessary; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies municipal water conservation, water recycling and reuse; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations;

	7.2 Prioritize ongoing participation of DACs in the Regional Water Management Group.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	• Number of flushing events reduced by 90% • 275 new water meters installed • Reduction in water treatment cost • Reduced rate increase to members of a disadvantaged community

CLXXXV. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	Replaces leaking steel mains with new plastic mains eliminating leaks
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Improves distribution throughout the system providing redundancy and increased flow by increasing water main sizes
Increase Water Supply	
Conjunctive Management and Groundwater	Conserves this resource by water metering, reduced flushing and elimination of leaks
Improve Water Quality	
Drinking Water Treatment and Distribution	Improves water quality by replacing deteriorating infrastructure with new infrastructure that meets current standards

CLXXXVI. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water system energy efficiency

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

We would increase energy efficiency with the elimination of leaks, reducing flushing and with metered accounts. The staff hours needed to find and repair the leaks would be a minimal. The operations and maintenance in the area would be improved.

By the elimination of leaks, reducing flushing and with metered accounts we would conserve water that could be used in a drought.

GHG Emissions Reduction

Leaking drinking water distribution systems waste water and energy. A leaky system is energy inefficient because it requires the system to pump more water than is actually being used for beneficial uses. By replacing the water main, overall, system-wide energy use will be decreased significantly thereby reducing emissions substantially.

Additionally, the old, steel main needs to be flushed on a periodic basis to meet water quality standards. Such system flushing will not be required with the new main. Flushing pipes uses water that could otherwise be utilized for beneficial purposes and requires energy to pump the water. This current energy use will no longer be necessary with the new water mains in place.

CLXXXVII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Prop. 218 in process for rate increase	Dependent on 218 rate adjustment process or grant funding (consultant has been retained to begin the process- February, 2014)	Rate adjustment will be in place by July 2004 (for a three year adjustment) and/or grant funding
Design	As funding becomes available		
Environmental Documentation (CEQA/NEPA)	Exempt		
Permitting	TBD		

Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Through rate increases (vis-à-vis proposition 218) and/or grant funding for DAC		

CLXXXVIII. Project Technical Feasibility

iii. List the water planning documents that specifically identify this project.	OPUD Capital Improvement Plan
jjj. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	OPUD UWMP
kkk. List technical reports and studies supporting the feasibility of this project.	Previous pipeline replacement projects and direct experience with steel water main replacement – before and after maintenance requirements
If you are an Urban Water Supplier:	
58. Have you completed an Urban Water Management Plan and submitted to DWR?	Yes
59. Are you in compliance with AB1420?	Yes
60. Do you comply with the water meter requirements (CWC Section 525)?	Yes
61. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
26. Have you completed and submitted an AWMP?	N/A
If the project is related to groundwater:	
27. Has GWMP been completed and submitted for the subject basin?	Yes

Acquisition of Landside Urban Levee Maintenance Corridors

RD784-01

CLXXXIX. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steven L. Fordice
Mailing Address	1594 Broadway, Arboga, California 95961
Email Address	steve@rd784.org
Phone	(530) 742-0520

CXC. General Project Information

Project Title	Acquisition of Landside Urban Levee Maintenance Corridors
Project Total Budget	$5.5 million
Project Funding Match	The RD784 Urban Levee System serves two Disadvantaged Communities (Linda and Olivehurst) as well as industrial and commercial infrastructures, schools, community medical facilities throughout the basin.
Project Funding Request	$5.5 million
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Landside of the Urban levee
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Linda, Olivehurst, Plumas Lake
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin, South Yuba Sub-basin
Project Type	Planning Acquisitions

CXCI. Project Description

California Title 23, the California Urban Levee Design Criteria and the United States Army Corps of Engineers regulations (Public Law 84-99) all require the acquisition either in fee or easement of landside maintenance corridors needed to patrol and if necessary, flood fight. In the past, land rights were not obtained in many areas. The cost to comply with Maintenance Corridor regulations as mandated through California Title 23 and Public Law 84-99 is well beyond the financial capability of Yuba County or Reclamation District 784.

The purpose of this project is to acquire land for maintenance corridors in areas where the district is currently non-compliant with the aforementioned state and federal regulations. In particular, this project aims to acquire properties in the Silverwood Estates residential neighborhood that is abutted by the Yuba River South Levee and other urban levee areas where no land rights were obtained and no maintenance corridor was established. This project would substantially enhance flood protection throughout the urban basin.

The urban basin serves two Disadvantaged Communities as well as other vital infrastructures and communities.

CXCII. Project Rationale/Issues Statement

This project enhances flood management and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two disadvantaged communities. The project, additionally, ensures compliance with state and federal flood management regulations, maintaining the district's eligibility for federal assistance for flood preparedness, emergency response and rehabilitation. The project specifically addresses the following regional issues:

- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CXCIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project:	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by Project	1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.2 Minimize water quality impacts from flood;

	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 7.2 Prioritize ongoing participation of DACs in the Regional Water Management Group
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	Success would be achieved when fee simple acquisition of land needed for Title 23 and USACOE regulation requiring landside and waterside toe maintenance along the entire urban levee system.

CXCIV. Resource Management Strategies

Improve Water Quality	
Urban Runoff Management	The catchment basin captures sediment and miles of drainage canals convey and filter urban stormwater.
Practice Natural Resources Stewardship	
Land Use Planning and Management	Without Levee certification, land behind the levees cannot be developed. Excessively expensive FEMA flood insurance rates would be imposed/
Improve Flood Management	
Flood Risk Management	Internal Drainage flood management that protects water treatment, water conveyance and ground water recharge facilities.

CXCV. Statewide Priorities

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process

<u>Climate Change Adaptation</u>

The urban levee system was designed to provide both a 100 year (Federal) and 200 year (State of California) levels of flood protection. The establishment of landside maintenance corridors to allow

flood fight, patrol and maintenance functions are required by state and federal regulations. While alternative methods are currently in place to assure public safety, ultimately land rights will have to be obtained and maintenance corridors established. During the Urban Levee construction, TRLIA was able to obtain and construct maintenance corridors. This project is designed to complete that process.

GHG Emissions Reduction

Acquisition of Fee simple land itself does not require any construction processes. In the future, removal of trees and structures and the construction of toe roads might to be done to fully comply. Some of the tree removal could be accomplished during the regular course of farm operations. RD784 has been actively recycling trees as firewood whenever possible rather than just burning woody materials as garbage. During other area construction projects, wood pulp has been salvaged during chipping operations.

CXCVI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Complete	Complete	Complete
Design	N/A		
Environmental Documentation (CEQA/NEPA)	N/A		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	N/A	N/A	N/A

CXCVII. Project Technical Feasibility

lll. List the water planning documents that specifically identify this project.	• RD784 Master Drainage plan and part of the • Yuba County General Plan
mmm. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	• RD784 Master Drainage plan and part of the • Yuba County General Plan

nnn. List technical reports and studies supporting the feasibility of this project.	• USACE Period Inspection 2010-2011 • Title 23 California Water Code requirement

Chestnut Pump Station Reconstruction

RD784-02

CXCVIII.Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steven L. Fordice
Mailing Address	1594 Broadway, Arboga, California 95961
Email Address	steve@rd784.org
Phone	(530) 742-0520

CXCIX. General Project Information

Project Title	Chestnut Pump Station Reconstruction
Project Total Budget	$2.5 million
Project Funding Match	This pump station serves the Disadvantaged Communities of Linda and Olivehurst
Project Funding Request	$2.5 million
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Chestnut Road East of the Western Pacific Railroad, Linda
Latitude	39.1277
Longitude	-121.5508
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Linda
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Facility Construction Best Management Practices

CC. Project Description

This project will demolish the current facility and construct a new pump station at the current site with two pumps (primary and redundant) capable of pumping 15 cubic feet per second (cfs) controlled by a SCADA motor control system. A back-up generator would replace a diesel motor back-up supplying reliable power and reducing emissions. A Closed Circuit Television Camera (CCTV) and a motion activated camera security system would also be installed to protect the facility. The CCTV camera would be part of an existing CCTV system already in place.

Additionally, during the design phase of the project, the feasibility of reclaiming storm water for agricultural and municipal use as well as the project's possible contribution to groundwater recharge will be considered, assessed and determined.

CCI. Project Rationale/Issues Statement

This project replaces aging drainage infrastructure which enhances flood management, and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two Disadvantaged Communities (DACs). Additionally, the project considers the possibility of reclaiming storm water for agricultural and municipal reuse. The project specifically addresses the following regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Water use efficiency/water conservation;
- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CCII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project:	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project reduces greenhouse gas emissions and improves flood protection. **Goal 7:** The project provides flood protection for the disadvantaged communities of Linda and Olivehurst.
Objectives Addressed by Project	1.1 Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation

	efficiencies, municipal water conservation, water recycling and reuse; 1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.2 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 7.2 Prioritize ongoing participation of DACs in the Regional Water Management Group
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ The rebuilt pump station would replace older, inefficient pumps and electrical motors with updated technology that uses less power. Lower power consumption for similar pumping capacity could be measured. ▪ Replace the old, World War II PT Boat emergency generator motor with high efficiency, low hydrocarbon exhaust motor and increase emergency power reliability. ▪ Lowered FEMA Flood insurance premiums in some surrounding areas due to additional internal drainage protection.

CCIII. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Returns stormwater to the river.
Increase Water Supply	
Conjunctive Management and Groundwater	A policy of retaining water in detention basins at the end of winter seasons for later release or possible groundwater recharge is being considered.
Recycled Municipal Water	Determine feasibility of recycling stormwater for agricultural and municipal use.
Improve Water Quality	
Urban Runoff Management	The catchment basin captures sediment and miles of drainage canals convey and filter urban stormwater.
Matching Water Quality to Use	The project aims to determine the feasibility of reclaiming stormwater for non-potable agricultural irrigation.
Practice Natural Resources Stewardship	

Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands.
Recharge Areas Protection	Protects basin infrastructures; assesses the facility's contribution to groundwater recharge.
Improve Flood Management	
Flood Risk Management	Internal Drainage flood management that protects water treatment, water conveyance and ground water recharge facilities.

CCIV. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The rebuilt pump station is phase two of a larger project. The detention basin has already been enlarged to impound more water. The rebuilt pump station will be able to more reliably move larger quantities of stormwater expected with more extreme weather. The computer control systems and more efficient pumps and motors will reduce the operation's carbon footprint as well as reduce costs. Additionally, the project will consider modifications to allow for reclaiming storm water for agricultural and municipal use contributing to a more reliable water supply in response to projected climate variability and anticipated drought conditions.

GHG Emissions Reduction

Replacement pumps would be more efficient which would require less energy. The replacement generator would replace 1940s diesel technology with more reliable and cleaner contemporary generating equipment. The pump station is in an isolated location and subject to theft and vandalism making solar or other energy sources impractical. However, the District has adopted a policy of pumping proactively off peak unless overcome by severe storm conditions. The entire facility has to be hardened against theft and vandalism.

CCV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Done		
Design	Preliminary design complete; additional design required for water recycling capability and groundwater recharge assessment		Fall 2016
Environmental Documentation (CEQA/NEPA)	Done		
Permitting	TBD	Awaiting Funding	
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	
Construction/ Implementation	Awaiting Funding	Awaiting Funding	Unknown

CCVI. Project Technical Feasibility

ooo. List the water planning documents that specifically identify this project.	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
ppp. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
qqq. List technical reports and studies supporting the feasibility of this project.	Studies and assessment included in Master Drainage Plan

Edgewater Detention Basin and Pump Station 5 Improvements

RD784-03

CCVII. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steve Fordice, General Manager / Patrick Meagher, Field Superintendent
Mailing Address	1594 Broadway, Arboga CA 95993
Email Address	Steve@rd784.org Patrick@rd784.org
Phone	(530)742-0520

CCVIII. General Project Information

Project Title	Edgewater Detention Basin and Pump Station 5 (Avondale) Improvements
Project Total Budget	$3.5 Million
Project Funding Match	Project serves a Disadvantaged Community
Project Funding Request	$3.5 Million
Can a detailed cost estimate be provided upon request?	This is an estimate only. If funds are awarded the project will be bid out with more cost details available after bid results are in.
Project Location:	Old Facility is at 5935 Avondale Rd. Linda CA 95901, new is at the Edgewater Detention Basin near the intersection of Rupert and Avondale Avenues.
Latitude	See above.
Longitude	See above.
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Approximately 0.5 miles east of Lindhurst Avenue to Avondale Rd, South approximately 1.5 miles to the end of Rupert Avenue in Linda CA.
County	Yuba County
City/Community	Linda
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Facility Construction

CCIX. Project Description

Phase I: ($2.1 Million) Demolition of the current facility and construction of a new pump station at the Edgewater Detention Pond with two pumps (Primary and Redundant) capable of pumping up to 35 cubic feet per second (Between both pumps) controlled by an automated SCADA (Supervisory Control and Data Acquisition) system.

Additionally, during the design phase I of the project, the feasibility of reclaiming storm water for agricultural and municipal use as well as the project's possible contribution to groundwater recharge will be considered, assessed and determined.

Phase II: ($1.5 Million) Installation of a diesel backup generator capable of replacing lost commercial power to both pumps simultaneously in the event of an emergency.

CCX. Project Rationale/Issues Statement

This project replaces aging drainage infrastructure which enhances flood management, and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two Disadvantaged Communities (DACs). Additionally, the project considers the possibility of reclaiming storm water for agricultural and municipal reuse. The project specifically addresses the following regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Water use efficiency/water conservation;
- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CCXI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure and promoting disaster preparedness. **Goal 6:** The project makes stormwater system modifications that adapt to the effects of climate change. **Goal 7:** The project provides flood protection for the disadvantaged communities of Linda and Olivehurst.

Objectives Addressed by Project	1.1 Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.3 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 7.2 Prioritize ongoing participation of DACs in the Regional Water Management Group
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Decreased flood risk ▪ Lower FEMA flood insurance premiums

CCXII. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Conveys stormwater to nearby drainage canals that eventually reach the rivers
Increase Water Supply	
Conjunctive Management and Groundwater	A policy of retaining water in detention basins at the end of winter seasons for later release or possible groundwater recharge is being considered.
Recycled Municipal Water	Determine feasibility of recycling stormwater for agricultural and municipal use.
Improve Water Quality	

Urban Runoff Management	The catch basin captures sediment and miles of drainage canals convey and filter urban stormwater.
Matching Water Quality to Use	The project aims to determine the feasibility of reclaiming stormwater for non-potable agricultural irrigation.
Practice Natural Resources Stewardship	
Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands
Recharge Areas Protection	Protects basin infrastructures; assesses the facility's contribution to groundwater recharge.
Improve Flood Management	
Flood Risk Management	Internal Drainage Flood Management that protects water treatment, water conveyance and ground water recharge facilities.

CCXIII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

Relocating this pump station to the Edgewater Detention basin enables the surrounding region to handle more stormwater during extreme weather events, resulting more sustainable flood management. Currently the existing pump station comprises of aging infrastructure, only capable of conveying stormwater from surrounding disadvantaged communities through the pumps only. The detention basin would enable much more storage capacity. Additionally, the project will consider modifications to allow for reclaiming storm water for agricultural and municipal use contributing to a more reliable water supply in response to projected climate variability and anticipated drought conditions.

GHG Emissions Reduction

The construction of this basin and pump station would replace two older pumps and less efficient electrical motors to be replaced with new, cleaner technology. A SCADA system would allow offsite control and allow for off-peak operation unless overcome by heavy storms.

CCXIV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Preliminary		TBD- awaiting funding
Design	Preliminary		TBD- awaiting funding
Environmental Documentation (CEQA/NEPA)	Pending		
Permitting	Identified		TBD- awaiting funding
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending Funds	Pending Funds	Unknown

CCXV. Project Technical Feasibility

rrr. List the water planning documents that specifically identify this project.	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
sss. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
ttt. List technical reports and studies supporting the feasibility of this project.	Studies and assessment included in Master Drainage Plan

Pump Station 1 Reconstruction

RD784-04

CCXVI. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steven L. Fordice
Mailing Address	1594 Broadway, Arboga, California 95961
Email Address	steve@rd784.org
Phone	(530) 742-0520

CCXVII. General Project Information

Project Title	Pump Station 1 Reconstruction
Project Total Budget	$500,000
Project Funding Match	Local Match funds would be provided by RD 784
Project Funding Request	$375,000
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Algodon Road east of Hwy 70 at the East end of the Plumas Lake Canal
Latitude	
Longitude	
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Linda
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin/ South Yuba Sub-basin
Project Type	Facility Construction Best Management Practices

CCXVIII. Project Description

Currently, one of the two pumps is not operational and the pump station cannot be controlled remotely. The site is also vulnerable to theft and vandalism. The project would repair the inoperable pump, add a SCADA motor control system for both pumps and add security features including a CCTV camera and a motion activated camera based intrusion alarm system. This pump station lifts water out of the Plumas Lake Canal at the East end and into the Algodon Canal. This pump Station protects the Plumas Lake Golf Club, farmland, commercial, government and residential properties including the Plumas Lake communities.

Additionally, during the design phase of the project, the feasibility of reclaiming storm water for agricultural and municipal use as well as the project's possible contribution to groundwater recharge will be considered, assessed and determined.

CCXIX. Project Rationale/Issues Statement

This project replaces aging drainage infrastructure which enhances flood management, and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two Disadvantaged Communities (DACs). Additionally, the project considers the possibility of reclaiming storm water for agricultural and municipal reuse. The project specifically addresses the following regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Water use efficiency/water conservation;
- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CCXX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project:	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 4:** The project enhances regional economic development by protecting agricultural lands from the impacts of flooding. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project reduces greenhouse gas emissions and improves flood protection.
Objectives Addressed by Project:	1.1 Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation

	efficiencies, municipal water conservation, water recycling and reuse; 1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.4 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide; 4.6 Promote regulations that support local and regional economic resiliency by working with and among regulatory agencies to 1) reduce regulatory conflicts, 2) ensure consistent enforcement of regulations, and 3) reduce costs and difficulty of meeting regulatory compliance; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations; 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Decreased flood risk ▪ Lower FEMA flood insurance premiums

CCXXI. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Returns stormwater to the river.
Increase Water Supply	
Conjunctive Management and Groundwater	A policy of retaining water in detention basins at the end of winter seasons for later release or possible groundwater recharge is being considered.
Recycled Municipal Water	Determine feasibility of recycling stormwater for agricultural and municipal use.
Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Protects AG lands and farm product processing infrastructures.

Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands.
Recharge Areas Protection	Protects basin infrastructures; assesses the facility's contribution to groundwater recharge.
Improve Water Quality	
Matching Water Quality to Use	The project aims to determine the feasibility of reclaiming stormwater for non-potable agricultural irrigation.
Improve Flood Management	
Flood Risk Management	Internal Drainage flood management facility that protects schools, residences, commercial and industrial infrastructures including a golf course.

CCXXII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

The repair of one pump, the addition of the SCADA system and the security improvements would assure the pump station's ability to protect a large residential community as well as schools, farm product processing facilities and farms. The pump station is part of the RD784 Master Drainage plan and is part of an internal drainage stormwater protection system needed to certify the urban basin levee system to the 100 and 200 year stormwater safety. Additionally, the project will consider modifications to allow for reclaiming storm water for agricultural and municipal use contributing to a more reliable water supply in response to projected climate variability and anticipated drought conditions.

GHG Emissions Reduction

The construction of this basin and pump station would replace two older pumps and less efficient electrical motors to be replaced with new, cleaner technology. A SCADA system would allow offsite control and allow for off-peak operation unless overcome by heavy storms. Emergency generator power would be added to enhance reliability.

CCXXIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Done		
Design	Done (excepting design considerations for modifying system for reclaimed water capability)		
Environmental Documentation (CEQA/NEPA)	Awaiting Funding		
Permitting	Awaiting funding	Awaiting Funding	
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	
Construction/ Implementation	Awaiting Funding	Awaiting Funding	Unknown

CCXXIV. Project Technical Feasibility

uuu. List the water planning documents that specifically identify this project.	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
vvv. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan

Master Plans, Habitat Conservation Plans, etc.)	
www. List technical reports and studies supporting the feasibility of this project.	Studies and assessment included in Master Drainage Plan

Pump Station 2 System Improvement

RD784-05

CCXXV. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steve Fordice, General Manager / Patrick Meagher, Field Superintendent
Mailing Address	1594 Broadway, Arboga CA 95993
Email Address	Steve@rd784.org Patrick@rd784.org
Phone	(530)742-0520

CCXXVI. General Project Information

Project Title	Pump Station 2 System Improvement
Project Total Budget	$525,000.00
Project Funding Match	Serves Disadvantaged Communities
Project Funding Request	$525,000.00
Can a detailed cost estimate be provided upon request?	This is an estimate only. If funds are awarded the project will be bid out with more cost details available after bid results are in.
Project Location:	80 County Rd. 512, Olivehurst CA
Latitude	39.0956° N
Longitude	121.5522° W
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Approximately 2 miles West of County Rd. 512 along the Levee
County	Yuba County
City/Community	Plumas Lake
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Facility Construction

CCXXVII. Project Description

Phase I: ($25,000) Installation of one Sonitrol PTZ (Point, Tilt, Zoom) security camera to enable personnel to capture video and still photo footage of the area to enhance security as well as provide remote monitoring of the pump station equipment and surrounding conditions, especially during flood season. Additionally, during the design phase I of the project, the feasibility of reclaiming storm water for agricultural and municipal use as well as the project's possible contribution to groundwater recharge will be considered, assessed and determined.

Phase II: ($500,000) Installation of a 4th Pump. This existing pump station currently comprises 3 pumps but has the capacity to add a 4th pump to allow more drainage for future water runoff expected from anticipated continued development in the lower Plumas Lake Area.

CCXXVIII. Project Rationale/Issues Statement

This project replaces aging drainage infrastructure which enhances flood management, and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two Disadvantaged Communities (DACs). Additionally, the project considers the possibility of reclaiming storm water for agricultural and municipal reuse. The project specifically addresses the following regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Water use efficiency/water conservation;
- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CCXXIX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** This project responds to climate vulnerabilities by increasing the capacity of existing flood control infrastructure to receive increased levels of run-off in storm events.
Objectives Addressed by Project	1.1 Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies;

	2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.5 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Increased use of irrigation tail water by recycling back to agricultural users whenever possible ▪ Increased security and protection of water supply systems ▪ Lowering Flood / Danger / Risk

CCXXX. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	A policy of retaining water in detention basins at the end of winter seasons for later release or possible groundwater recharge is being considered.
Recycled Municipal Water	Determine feasibility of recycling stormwater for agricultural and municipal use.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Returns stormwater to the river
Practice Natural Resources Stewardship	
Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands.
Recharge Areas Protection	Protects basin infrastructures.
Improve Flood Management	
Flood Risk Management	Internal Drainage Flood Management that protects water treatment, water conveyance and ground water recharge facilities.

CCXXXI.Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

The project will consider modifications to allow for reclaiming storm water for agricultural and municipal use contributing to a more reliable water supply in response to projected climate variability and anticipated drought conditions.

GHG Emissions Reduction

The 4th pump would not only serve as a redundant pump in the event of primary pump failure but could possibly be used to recycle irrigation tail water during irrigation seasons for agriculture reuse.

The camera system would increase site security and enhance the ability to operate the facility from offsite remotely, increasing operational efficiency and reducing emissions.

CCXXXII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Phase 1-Done (excepting system modifications related to water recycling) Phase 2- Preliminary		

Design	Phase1- Done (excepting system modifications related to water recycling) Phase 2- Preliminary		
Environmental Documentation (CEQA/NEPA)	Phase 1- N/A Phase 2- Existing infrastructure		
Permitting	Phase 1- N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending Funds	Pending Funds	Unknown

CCXXXIII. Project Technical Feasibility

xxx. List the water planning documents that specifically identify this project.	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
yyy. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
zzz. List technical reports and studies supporting the feasibility of this project.	Studies and assessment included in Master Drainage Plan

Pump Station 10 Improvements

RD784-06

CCXXXIV. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 784
Name of Primary Contact(s)	Steve Fordice, General Manager / Patrick Meagher, Field Superintendent
Mailing Address	1594 Broadway, Arboga CA 95993
Email Address	Steve@rd784.org Patrick@rd784.org
Phone	(530)742-0520

CCXXXV. General Project Information

Project Title	Pump Station 10 Improvements
Project Total Budget	$3.7 Million
Project Funding Match	This project provides flood protection for the disadvantaged communities of Olivehurst and Linda.
Project Funding Request	$3.7 Million
Can a detailed cost estimate be provided upon request?	This is an approximate estimate only. If funds are awarded the project will be bid out with more cost details available after bid results are in.
Project Location:	1220 Murphy Rd., Olivehurst CA 95961
Latitude	39.0956° N
Longitude	121.5522° W
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Located in Olivehurst CA, approximately 1 mile north of the intersection of Feather River Blvd. and Ella Ave., then 0.5 miles east of Feather River Blvd.
County	Yuba County
City/Community	Olivehurst
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Facility Construction

CCXXXVI. Project Description

Phase I: Installation of a remote access “Point, Tilt, Zoom” security/ monitoring camera. ($25,000)

Phase IA: Conduct a groundwater recharge assessment to determine the efficacy of groundwater recharge (area protection). This pump station is also well positioned in the District to provide recycled

storm water for agricultural and municipal uses. Therefore, during this phase of the project, the feasibility of reclaiming storm water for agricultural and municipal use will be considered, assessed and determined. ($150,000)

Phase II: Install storm drain line from current pump site to the Unit 9 Levee. ($2.5 Million)

Phase III: Install the Waterside Levee Headwall at the water discharge outtake area ($100,000)

Phase IV: Construct the Water Side conveyance ditch leading to the Feather River ($1,000,000)

CCXXXVII. Project Rationale/Issues Statement

This project replaces aging drainage infrastructure which enhances flood management, and protects water conveyance, several wastewater management and ground water recharge facilities that serve Linda and Olivehurst, two Disadvantaged Communities (DACs). Additionally, the project considers the possibility of reclaiming storm water for agricultural and municipal reuse. The project specifically addresses the following regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Water use efficiency/water conservation;
- Improving flood management;
- Ensuring regulatory compliance;
- Adapting to climate change.

CCXXXVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project addresses climate vulnerabilities by improving flood protection. **Goal 7:** The project provides flood protection for the disadvantaged community of Olivehurst.
Objectives Addressed by Project	1.1 Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors;

	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.6 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 7.2 Prioritize ongoing participation of DACs
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	▪ Increased use of irrigation tail water by recycling back to agricultural users whenever possible ▪ Increased security and protection of water supply systems ▪ Lowering Flood / Danger / Risk

CCXXXIX. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	A policy of retaining water in detention basins at the end of winter seasons for later release or possible groundwater recharge is being considered.
Recycled Municipal Water	Determine feasibility of recycling stormwater for agricultural and municipal use.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Conveys stormwater to nearby drainage canals that eventually reach the rivers
Improve Water Quality	
Urban Runoff Management	The catch basin captures sediment and miles of drainage canals convey and filter urban stormwater.

Matching Quality to Use	The project aims to determine the feasibility of reclaiming stormwater for non-potable agricultural irrigation.
Practice Natural Resources Stewardship	
Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands.
Recharge Areas Protection	Protects basin infrastructures; assesses the facility's contribution to groundwater recharge.
Improve Flood Management	
Flood Risk Management	Internal Drainage Flood Management that protects water treatment, water conveyance and ground water recharge facilities.

CCXL. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduce Energy Consumption: Water recycling

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

Constructing pipe from Pump Station 10 going west and eventually reaching the Feather River enables the surrounding region to handle more storm water during extreme weather events, resulting in more sustainable flood management. Currently, the storm water pumped out of the detention basin is conveyed south through an existing open canal (Lateral 15), eventually reaching another existing pump station. Reconstructing the storm water discharge route would eliminate the need to "double pump" while also saving energy costs. Additionally, the project will consider modifications to allow for reclaiming storm water for agricultural and municipal use contributing to a more reliable water supply in response to projected climate variability and anticipated drought conditions. Also, this pump station has a significant capability to impound water, increasing system flexibility.

GHG Emissions Reduction

This project increases energy efficiency and reduces GHG emissions by eliminating redundant pumping that occurs in the existing system.

CCXLI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Complete- part of master drainage plan		
Design	Complete (excepting system modifications related to water recycling)		
Environmental Documentation (CEQA/NEPA)	Refresh		
Permitting	Been reviewed and initial approved but would require some additional permitting based on any design modifications (re-use)		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending Funds	Pending Funds	Unknown

CCXLII. Project Technical Feasibility

aaaa. List the water planning documents that specifically identify this project.	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
bbbb. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	▪ Yuba County General Plan ▪ RD 784 Master Drainage Plan
cccc. List technical reports and studies supporting the feasibility of this project.	Studies and assessment included in Master Drainage Plan

FSRP LAN 29 Critical Repair Project: Right Bank Bear River Setback Levee
RD817-01

CCXLIII. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 817
Name of Primary Contact(s)	Joe Conant
Mailing Address	Reclamation District 817 P.O. Box 261 Wheatland, CA 95692
Email Address	joewconant@gmail.com
Phone	530-682-7392
Project Partners/Collaborators	Currently in discussions with DWR/FESSRO to determine cost share partners

CCXLIV. General Project Information

Project Title	FSRP LAN29 Critical Repair Project – Right Bank Bear River Setback Levee
Project Total Budget	$7.8 million
Project Funding Match	TBD- currently determining possible cost share partners with DWR
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	Feasibility cost estimate available that needs to be refined to a more detailed cost estimate level.
Project Location:	Bear River Right Bank LM 2.00 – 3.06
Latitude	38.99064
Longitude	-121.46360
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Right bank levee of the Bear River approximately 1.3 miles upstream of Forty Mile Road in RD 817
County	Yuba
City/Community	Wheatland
Watershed/subwatershed	Bear River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Facility Construction Restoration

CCXLV. Project Description

This site is identified as a DWR Point of Interest DWR_RD817_02_0240_LM02.63 and is classified as a Tier 1 Critical site in the State Flood System Repair Program (FSRP). The site was a near-break site in 1986 along multiple areas of narrow, steep levee comprised mostly of sand. The upper end of the site is where the levee abruptly changes direction and narrows the channel. This condition exacerbates the high velocities already present and induces additional erosion and stability concerns.

This project would set the levee back approximately 150 feet to remove the channel constriction. The new levee would be constructed to the same elevation with minimum 3 horizontal to 1 vertical side slopes to current engineering standards for levee construction. The project would require approximately 9.5 acres of walnut orchard to be acquired and would create the opportunity for ecosystem restoration opportunities along the channel.

CCXLVI. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

- Upgrading infrastructure;
- Mitigating urban, agricultural and sediment run-off;
- Improving flood management;
- Enhancing Working Landscapes;
- Adapting to climate change.

CCXLVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** This project protects water supplies by upgrading flood management infrastructure and promoting disaster preparedness. **Goal 2:** The project protects water quality by mitigating for impacts from flood and in managing for urban, agricultural and sediment run-off. **Goal 3:** The project promotes environmental stewardship by creating an opportunity for ecosystem restoration. **Goal 4:** The project enhances regional economic development by supporting agricultural opportunities in the levee setback area. **Goal 5:** The project protects public safety by upgrading aging flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project addresses climate vulnerabilities by improving flood protection in a state identified critical site.

Objectives Addressed by Project	1.4 Promote disaster preparedness and conservation planning efforts; 1.5 Maintain and enhance flood control infrastructure to protect water supplies; 2.1 Protect and improve water quality by mitigating for urban, agricultural and sediment run-off; 2.7 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 3.4 Enhance floodplain function and habitat to achieve multiple flood management benefits while maintaining public safety; 4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability;
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	TBD- depending on available funding to realize multiple benefits in addition to existing flood control outcomes that would increase flood protection.

CCXLVIII. Resource Management Strategies

Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Yes – by improving flood protection to existing agricultural lands
Ecosystem Restoration	Yes – by adding 9.54 acres of land to the floodway
Improve Flood Management	
Flood Risk Management	Yes – primary project objective

CCXLIX. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems

Climate Change Adaptation

Setback levees provide additional corridor for natural river migration, flood system resiliency by increasing the system capacity, and provide lands that can be used for habitat restoration.

GHG Emissions Reduction

Construction-related activities comply with the requirements of the Feather River Air Quality Management District, whose standards exceed many other air quality districts' in the state.

Additionally, all disturbed areas during construction will be re-vegetated with California native grasses promoting carbon sequestration.

CCL. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Conceptual		
Design	Conceptual		
Environmental Documentation (CEQA/NEPA)	TBD		
Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending Funding		

CCLI. Project Technical Feasibility

dddd. List the water planning documents that specifically identify this project.	

eeee. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
ffff. List technical reports and studies supporting the feasibility of this project.	Pre-Feasibility Report, Leveed Area LAN29, Best Slough, Flood System Repair Project, Contract 4600008101, Task Order U112 (URS, July 2013)

Dry Creek Levee Feasibility Study

RD817-02

CCLII. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 817
Name of Primary Contact(s)	Tom Engler, MBK Engineers
Mailing Address	1771 Tribute Road, Suite A Sacramento, CA 95815
Email Address	engler@mbkengineers.com
Phone	916-456-4400

CCLIII. General Project Information

Project Title	Dry Creek Levee Feasibility Study
Project Total Budget	$797,000
Project Funding Match	TBD
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Dry Creek left bank levee in RD 2103
Latitude	39.01967
Longitude	-121.453942
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Wheatland
Watershed/subwatershed	Bear River/Dry Creek
Groundwater Basin	Yuba Groundwater Basin/South Yuba sub-basin
Project Type	Planning Study/Assessment

CCLIV. Project Description

In order to address flooding concerns for the City of Wheatland and surrounding agricultural lands, Reclamation Districts 2103 and 817 initiated a joint program (Program) to evaluate and repair the Bear River and Dry Creek levees to provide 200-year protection for the urbanizing area and repair the agricultural levees to meet the 1957 design. The Program is divided into three phases and includes Phase 1 – RD 2103 Bear River North Levee Rehabilitation Project (Completed 2010); Phase 2 – Evaluation

and Rehabilitation of RD 2103 Dry Creek South Levee; and Phase 3 – Evaluate and Rehabilitate Bear River and Dry Creek Levees in RD 817.

This project would complete a feasibility study for the Dry Creek levee as part of Phase 2 of the above described Program. The proposed study will include all of the civil, environmental, hydraulic, geotechnical and economic analysis required to evaluate alternatives consistent with California Code of Regulations, Title 23, Chapter 2.5.3, Section 499.4, *Feasibility Studies for the Yuba Feather Flood Protection Program.* All work will rely on existing data and information from previous efforts including the United States Army Corps of Engineers (USACE) Comprehensive Study, the USACE Lower Feather River Floodplain Mapping study, and the State of California Department of Water Resources (DWR) Non-Urban Levee Evaluation program. The Feasibility Study will seek to identify the most favorable mitigation strategies to achieve the goals of the RD 2103 and 817 Program consistent with the 2012 Central Valley Flood Protection Plan (CVFPP).

CCLV. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

- Improving flood management;
- Enhancing Working Landscapes;
- Adapting to climate change.

CCLVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 4:** The project enhances regional economic development by supporting agricultural opportunities to preserve working landscapes/agriculture. **Goal 5:** The project protects public safety by upgrading flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project addresses climate vulnerabilities by improving flood protection.
Objectives Addressed by Project	4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability

What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	Feasibility study would identify a cost effective measures to achieve goals and objectives.

CCLVII. Resource Management Strategies

Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Potentially
Improve Flood Management	
Flood Risk Management	Enhanced flood management to 200-year protection that would improve public safety and flood damage in extreme storm events.

CCLVIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems

Climate Change Adaptation

The project would mitigate for the effects of climate change by providing enhanced flood management to 200-year protection that would improve public safety and flood damage in extreme storm events.

GHG Emissions Reduction

This project is a feasibility study and therefore does not have a direct effect on GHG emissions. However, the feasibility study will consider and determine GHG emissions reduction strategies among project alternatives when making recommendations for project construction implementation that would occur subsequent to the completion of the feasibility study.

CCLIX. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Conceptual		
Design	Conceptual		
Environmental Documentation (CEQA/NEPA)	Pending funding		
Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending funding		

CCLX. Project Technical Feasibility

gggg. List the water planning documents that specifically identify this project.	
hhhh. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	2012 Central Valley Flood Protection Plan (CVFPP).
iiii. List technical reports and studies supporting the feasibility of this project.	▪ Army Corps of Engineers (USACE) Comprehensive Study, the USACE ▪ Lower Feather River Floodplain Mapping study ▪ State of California Department of Water Resources (DWR) Non-Urban Levee Evaluation program

Bear River and Dry Creek Levee Feasibility Study

RD2103-01

CCLXI. Project Sponsor Contact Information

Lead Agency/Organization	Reclamation District 2103
Name of Primary Contact(s)	Tom Engler, MBK Engineers
Mailing Address	1771 Tribute Road, Suite A Sacramento, CA 95815
Email Address	engler@mbkengineers.com
Phone	916-456-4400

CCLXII. General Project Information

Project Title	Bear River & Dry Creek Levee Feasibility Study
Project Total Budget	$1.2 million
Project Funding Match	TBD
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	No
Project Location:	Dry Creek left bank levee and Bear River right bank in RD 817
Latitude	38.987131
Longitude	-121.503433
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Wheatland
Watershed/subwatershed	Bear River/Dry Creek
Groundwater Basin	Yuba Groundwater Basin/South Yuba sub-basin
Project Type (highlight in gray all the apply)	Planning Study/Assessment

CCLXIII. Project Description

In order to address flooding concerns for the City of Wheatland and surrounding agricultural lands, Reclamation Districts 2103 and 817 initiated a joint program (Program) to evaluate and repair the Bear River and Dry Creek levees to provide 200-year protection for the urbanizing area and repair the agricultural levees to meet the 1957 design. The Program is divided into three phases and includes Phase 1 – RD 2103 Bear River North Levee Rehabilitation Project (Completed 2010); Phase 2 – Evaluation

and Rehabilitation of RD 2103 Dry Creek South Levee; and Phase 3 – Evaluate and Rehabilitate Bear River and Dry Creek Levees in RD 817.

This project would complete a feasibility study for the Dry Creek and Bear River levees as part of Phase 3 of the above described Program. All work will rely on existing data and information from previous efforts including the United States Army Corps of Engineers (USACE) Comprehensive Study, the USACE Lower Feather River Floodplain Mapping study, and the State of California Department of Water Resources (DWR) Non-Urban Levee Evaluation program. The Feasibility Study will seek to identify the most favorable mitigation strategies to achieve the goals of the RD 2103 and 817 Program consistent with the 2012 Central Valley Flood Protection Plan (CVFPP).

CCLXIV. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

- Improving flood management;
- Enhancing Working Landscapes;
- Adapting to climate change.

CCLXV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 4:** The project enhances regional economic development by supporting agricultural opportunities to preserve working landscapes/agriculture. **Goal 5:** The project protects public safety by upgrading flood management infrastructure, promoting disaster preparedness and reducing the costs and difficulty of achieving regulatory compliance. **Goal 6:** The project addresses climate vulnerabilities by improving flood protection.
Objectives Addressed by Project	4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible,	Feasibility study would identify a cost effective measures to achieve goals and objectives.

provide a quantitative measurement reflecting successful project outcomes.	

CCLXVI. Resource Management Strategies

Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	Potentially
Improve Flood Management	
Flood Risk Management	Enhanced flood management to 200-year protection that would improve public safety and flood damage in extreme storm events.

CCLXVII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems

Climate Change Adaptation

The project would mitigate for the effects of climate change by providing enhanced flood management to 200-year protection that would improve public safety and flood damage in extreme storm events.

GHG Emissions Reduction

This project is a feasibility study and therefore does not have a direct effect on GHG emissions. However, the feasibility study will consider and determine GHG emissions reduction strategies among project alternatives when making recommendations for project construction implementation that would occur subsequent to the completion of the feasibility study.

CCLXVIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Conceptual		
Design	Conceptual		

Environmental Documentation (CEQA/NEPA)	TBD		
Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending funding		

CCLXIX. Project Technical Feasibility

jjjj. List the water planning documents that specifically identify this project.	
kkkk. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	2012 Central Valley Flood Protection Plan (CVFPP)
llll. List technical reports and studies supporting the feasibility of this project.	▪ Army Corps of Engineers (USACE) Comprehensive Study, the USACE ▪ Lower Feather River Floodplain Mapping study ▪ State of California Department of Water Resources (DWR) Non-Urban Levee Evaluation program

Daguerre Point Dam Fish Passage Improvement

SYRCL-01

CCLXX. Project Sponsor Contact Information

Lead Agency/Organization	The South Yuba River Citizens League (SYRCL)
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue Suite #101, Nevada City, CA 95959
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	Yuba County Water Agency, USFWS, Army Corps of Engineers, Teichert

CCLXXI. General Project Information

Project Title	Daguerre Point Dam Fish Passage Improvement
Project Total Budget	$1,000,000
Project Funding Match	$300,000 (foundation and agency grants)
Project Funding Request	$1,000,000
Can a detailed cost estimate be provided upon request?	YES
Project Location:	Daguerre Point Dam
Latitude	39.2087354
Longitude	-121.4439211
Could you provide a map of the project location including boundaries upon request?	YES
Project Location Description:	The Lower Yuba River stretches 24 miles from Englebright Dam to the confluence with the Feather River. Daguerre Point Dam is located 13 miles downstream of Englebright Dam.
County	Yuba
Watershed/subwatershed	Lower Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Facility Construction Restoration Monitoring Best Management Practices Demonstration/Pilot Project

CCLXXII. Project Description

The Daguerre Point Dam fish ladders do not meet standards established by fisheries agencies to reduce impacts on migrating fish. Fish passage studies led by the Department of Water Resources (Entrix 2003) described seven alternatives for improving fish passage at the dam, but the Daguerre Point Dam Fish Passage Improvement Project has not progressed since then. A project is required to reduce impacts to species listed under the Endangered Species Act. This is particularly true for spring- run chinook salmon that migrate during higher flows when the ladders are not easily accessible. Other concerns include predation under the dam, temperature extremes, and sediment capture. The dam delays spring-run Chinook salmon from passing to the upstream reaches of the Lower Yuba River, increasing rates of hybridization with fall-run salmon and possibly limiting the use of available in-stream spawning habitat.

After evaluating the alternatives and updating these strategies with more recently collected data, the preferred alternative for improving fish passage at Daguerre Point Dam will be selected and implemented. Implementation will require further design work, stakeholder involvement (including county, private, and tribal), and extensive permitting. This project requires that state or local money be used as a 50% match to a federally funded fish passage improvement project, as required by the Army Corps of Engineers.

CCLXXIII. Project Rationale/Issues Statement

The project addresses the following identified regional issue:

to recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible.

CCLXXIV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species

	6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat • Linear feet of stream bank protected or restored • Number and frequency of water quality monitoring and sampling • Acres of riparian habitat and/or floodplain protected or restored • Number of collaboratively developed plans and assessments 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible • Linear feet of stream bank protected or restored • Acres of riparian habitat and/or floodplain protected or restored • Number of projects developed or implemented • Acre feet per annum streamflow improved • Number of collaborative plans, assessments, studies developed • Increased monitoring, sampling and data analysis. 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species • Regulatory issues committee developed by xx year • Number and diversity of stakeholders participating in regulatory issues committee • Increased monitoring, sampling and data analysis 6.3 Increase system flexibility and resiliency to adapt to climate variability • Number of collaboratively developed plans and assessments • Number of projects developed or implemented • Number of adaptive strategies implemented in the region and inter-regionally

CCLXXV. Resource Management Strategies

Practice Natural Resources Stewardship	
Ecosystem Restoration	X
Forest Management	X
Water-dependent Recreation	X
Watershed Management	X

CCLXXVI. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Enhanced floodplain ecosystems

Improve Tribal Water and Natural Resources

- Improve Tribal Water and Natural Resources and include the development of tribal consultation, collaboration, and access to funding for water programs

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

Improving fish passage over Daguerre Point Dam will allow more fish to travel to the upper reaches of the Lower Yuba River to spawn. This will create increased population resiliency by removing a major barrier to natural spawning grounds. The predicted changes in climate include earlier snowmelt and more extreme climatic conditions (flooding and drought), which coincide with crucial spawning and rearing times for anadromous fish. By completing these modifications now, we will positively impact anadromous fish populations for decades.

GHG Emissions Reduction

This project does not directly mitigate for GHG emissions.

CCLXXVII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Identified in Fish Passage Studies- See Technical Feasibility		

Design	Conceptual- Identified in Fish Passage Studies- See Technical Feasibility		
Environmental Documentation (CEQA/NEPA)	TBD- Pending Funding		
Permitting	TBD- Pending Funding		
Tribal Consultation (if not applicable, indicate by N/A)	Yes		
Construction/ Implementation	Pending Funding		

CCLXXVIII. Project Technical Feasibility

mmmm. List the water planning documents that specifically identify this project.	
nnnn. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	*Draft Recovery Plan for Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley steelhead.*, NMFS 2009.
oooo. List technical reports and studies supporting the feasibility of this project.	Entrix, Inc. 2003. Stakeholder Review Draft - Daguerre Point Dam Fish Passage Improvement Project 2002 Fisheries Studies: Analysis of Potential Benefits to Salmon and Steelhead from Improved Fish Passage at Daguerre Point Dam(8.5 MB). Prepared for DWR and the U.S. Army Corps of Engineers. Entrix, Inc. 2003. Stakeholder Review Draft - Daguerre Point Dam Fish Passage Improvement Project 2002 Water Resources Study (4.1 MB). Prepared for DWR and the U.S. Army Corps of Engineers. Wood Rodgers, Inc. 2003. Daguerre Point Dam Fish Passage Improvement Project Alternative Concepts Evaluation (19.5 MB). Prepared for Entrix, Inc.
If you are an Urban Water Supplier:	
62. Have you completed an Urban Water Management Plan and submitted to DWR?	N/A

63. Are you in compliance with AB1420?	
64. Do you comply with the water meter requirements (CWC Section 525)?	
65. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	YES
If you are an Agricultural Water Supplier:	
27. Have you completed and submitted an AWMP?	N/A
28. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
28. Has GWMP been completed and submitted for the subject basin?	N/A
29. If not, will the GWMP be completed within one year of the grant submittal date?	

Water Conservation Education

SYRCL-02

CCLXXIX. Project Sponsor Contact Information

Lead Agency/Organization	SYRCL
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue, Nevada City, CA 95959
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	Yuba County Water Agency

CCLXXX. General Project Information

Project Title	Water Conservation Education
Project Total Budget	$40,000
Project Funding Match	Agency cost share TBD
Project Funding Request	$40,000
Can a detailed cost estimate be provided upon request?	YES
Project Location:	Yuba County Schools
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba County
City/Community	Various
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Best Management Practices

CCLXXXI. Project Description

SYRCL's Water Conservation Education Program consists of two sub-programs:

1. **"Great Water Mystery" School Assemblies**
2. **School Water Audits**

1. Great Water Mystery School Assemblies: SYRCL has run a successful assembly program teaching water conservation to 234,000 students throughout California in just 7 years. The "Great Water

Mystery" Assembly teaches California State and National Science Standards and the presentations are adapted for different grade levels, so that they teach age-appropriate science concepts for kindergarten through eighth grade.

The "Great Water Mystery" is an interactive in-school assembly program that uses an engaging mystery story to teach children about water conservation. The presentation uses hilarious audience participation, dramatic slides, exciting demonstrations and fun stories to keep students and teachers engaged while teaching them to understand the effects that their actions have on our water supply.

The goal of "The Great Water Mystery" assembly program is to change the attitudes and behaviors of the audience members so that they incorporate simple water conservation techniques into their daily lives. Comparisons of pre- and post-assembly student surveys show a marked increase in students' knowledge about water and their commitment to conserving it.

Our data shows 40 assemblies with an average of 150 students per assembly, direct water savings due to students' behavior changes would be between 1,472,000 – 8,280,000 gallons of water per year.

2. School Water Audits:

Description: SYRCL's School Water Audit program began in 2006 with a pilot program in local schools funded by the California Department of Water Resources. This was a comprehensive program that taught students and teachers how to monitor and reduce their school's water use. Through a detailed analysis of school water use, students determined where water was being overused and made recommendations to conserve water. The program taught multiple California and National Science Content Standards making it extremely attractive to teachers.

Goal: SYRCL's goal is to implement this program in the Yuba County area. The goal of the School Water Audit Program is to show children how to initiate change at their own school, inspire parents and neighbors to make changes at home, and to become dedicated water stewards.

CCLXXXII. Project Rationale/Issues Statement

Issues Addressed: Water Use Efficiency/Water Conservation: Promote and implement policies and practices to increase water use efficiency and water conservation in municipal and agricultural sectors.

SYRCL's data shows 40 assemblies with an average of 150 students per assembly, direct water savings due to students' behavior changes would be between 1,472,000 – 8,280,000 gallons of water per year. This project is consistent with and supports the successful implementation of the California State *20x2020 Water Conservation Plan* of 2010.

CCLXXXIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region **Explanation:** SYRCL's Education Program addresses both conservation and ecological resource issues in the Yuba IRWM region. The program will be easily adapted to climate change education needs and we will work with School Districts in multiple DACs in the area.
Objectives Addressed by Project	Objective 1.8: Promote regional education and outreach regarding water supply issues and needs; Objective 3.7: Steward the region's ecological resource and directly provide opportunities for public access, recreation and education; Objective 6.5 Promote education about climate change/variability and its impacts on water management and watershed health throughout the region; Objective 7.4: Promote regional education and outreach in collaboration with DACs and tribes.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	1.8: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 3.7: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 6.5: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 7.4: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior.

CCLXXXIV. Resource Management Strategies

Reduce Water Demand	
Urban Water Use Efficiency	The project would reduce water demand through urban water use efficiency and conservation.
Practice Natural Resources Stewardship	
Ecosystem Restoration	The program would include education focused on riverine ecosystem restoration topics.

CCLXXXV. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling

- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

SYRCL's education program will promote education about climate change/variability and its impacts on water management and watershed health throughout the region.

GHG Emissions Reduction (maximum 200 words)

This project does not mitigate for GHG emissions.

CCLXXXVI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Complete		
Design	Complete		
Environmental Documentation (CEQA/NEPA)	N/A		
Permitting	N/A		

Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	This is an education project that is ready for immediate implementation		

CCLXXXVII. Project Technical Feasibility

pppp. List the water planning documents that specifically identify this project.	
qqqq. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	*20x2020 Water Conservation Plan*, 2010 **This plan was prepared by:** California Department of Water Resources State Water Resources Control Board California Bay-Delta Authority California Energy Commission California Department of Public Health California Public Utilities Commission California Air Resources Board **With assistance from:** California Urban Water Conservation Council U. S. Bureau of Reclamation
rrrr. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
66. Have you completed an Urban Water Management Plan and submitted to DWR?	
67. Are you in compliance with AB1420?	
68. Do you comply with the water meter requirements (CWC Section 525)?	
69. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	

29. Have you completed and submitted an AWMP?	
30. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
30. Has GWMP been completed and submitted for the subject basin?	
31. If not, will the GWMP be completed within one year of the grant submittal date?	

Yuba River Recreation Projects

SYRCL-03

CCLXXXVIII. Project Sponsor Contact Information

Lead Agency/Organization	The South Yuba River Citizens League (SYRCL)
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue, Nevada City, CA 95959
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	Yuba County Water Agency, Yuba County Planning Dept, Bear-Yuba Land Trust

CCLXXXIX. General Project Information

Project Title	**Yuba River Recreation Projects**
Project Total Budget	Total Project Budget: $400,000 Project Components include: 1. Comprehensive Lower Yuba Recreation Plan approx. $100,000 2. Yuba Watershed Discovery Portals approx. $150,000 3. Rice's Crossing Recreation Plan and Implementation approx. $150,000
Project Funding Match	TBD
Project Funding Request	$400,000
Can a detailed cost estimate be provided upon request?	YES
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Best Management Practices Demonstration/Pilot Project

CCXC. Project Description

SYRCL's Yuba Recreation Program consists of the following sub-programs:

1. **Comprehensive Lower Yuba Recreation Plan**

Description: SYRCL and the Bear-Yuba Land Trust will work with Yuba County Planning Department,

stakeholders and residents to develop a Master Recreation Plan for the Lower Yuba. The Plan will include the defining of recreation facilities and programs, providing accessible open space and access to the river, greenways, blueways and trails, preserving natural areas, programming for a diverse population and stressing the importance of developing partnerships to maximize resources. The project will build on the recommendations of the Yuba County General Plan Update and will include several model implementation demonstration sites.

2. **Yuba Watershed Discovery Portals**

Description: This project consists of seven water conservation kiosks and demonstration projects. Designed to educate and promote water supply and quality in Yuba County for residential agricultural use and for natural resource values, and to gain community support for the protection and restoration of the complex and effective water system in Yuba County.

The Project encompasses a series of seven demonstration "portal" sites comprising information kiosks, interpretive signage, demonstration projects such as riparian restoration, trails, maps of how the Yuba watershed works, and promotional tools for residents, tourists and schools.

The seven sites would begin at the top of the watershed and end at the confluence in Marysville and follow The Yuba Road designation and be connected with trails and roads.

Portal 1: Bullards Bar Dam featuring the YCWA reservoir storage site and healthy forest management techniques;

Portal 2: Colgate Powerhouse featuring hydroelectric power generation and clean energy, entering oak woodlands;

Portal 3: The Narrows featuring an historic hydraulic mine site, and agricultural lands;

Portal 4: Parks Bar Bridge featuring angler recreation, and the beginning of the Goldfields;

Portal 5: Hammon Grove featuring the Goldfields, and restoration projects;

Portal 6: Daguerre Dam featuring the salmon fish ladder;

Portal 7: Hallwood featuring the floodplain, and Confluence at Marysville.

3. **Rice's Crossing Project Recreation Plan**

Description: The *Rice's Crossing Project* includes 1,000 acres along the Yuba River, which until now has been closed to the public. The land was recently acquired for the public through a collaborative conservation effort.

The *Rice's Crossing Project Recreation Plan* is the first step to creating opportunities throughout the Project area for multiple recreation uses, historic conservation and economic success for several DACs in the Yuba IRWM region. SYRCL, along with the Bear-Yuba Land Trust and other stakeholders and residents, will write a *Recreation Plan* for the project which will define recreational linkages and corridors between major state parks, public lands and historic places; access to five historic riverfront townsites; access to archeologically important areas dating back 3,000 years; protection of a north-south and east-west wildlife corridor; expansion of a nationally renowned 16-mile mountain biking trail; protection of 9.5 miles of Class IV and V boating; support for rural tourism and economic development efforts in disadvantaged communities. Opportunities for the pubic to fish, boat, kayak, raft, hike, horseback ride, swim, pan and camp will all be considered, along with the economic benefits that recreation will bring to disadvantaged communities in the area and the impacts of proposed recreation on water quality, ecosystem restoration and protection of the Yuba River.

CCXCI. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Issue: Recreation:

- Promote and implement comprehensive recreational planning with a focus on regional economic development in the Lower Yuba River and beyond to improve local economies, improve habitat, and reduce human impact and threats to public safety

Issue: Forest Health (Rice's Crossing):

- Promote management policies and practices that protect forests and water supply and quality
- Steward healthy forests, employ fire and fuels management and restore watershed health vulnerable to the impacts of climate change

Issue: Land Conservation

- Address the connection between land-use planning and water
- Enhance recreational and economic development opportunities through land conservation efforts

Protect working landscapes from being lost to development, particularly ranch/ag lands, and the watershed benefits they provide

CCXCII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 4:** Enhance regional economic development by supporting recreational opportunities and sustainable agriculture **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by Project	3.7Steward the region's ecological resources that directly provide opportunities for public access, recreation and education 4.1 Promote comprehensive recreation planning and implementation with a focus on regional economic development 4.2 Enhance river access points to encourage recreational use while managing for human impacts to watershed health 4.3 Create river corridor linkages while enhancing migration corridors for plants and animals 4.4 Explore opportunities to increase water-dependent tourism throughout the region while building local communities' capacity to manage their recreational amenities 7.3 Foster partnerships to build the capacity of DACs and tribes throughout the region to manage their own recreational amenities 7.4 Promote regional education and outreach in collaboration with DACs and tribes
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	3.7 Steward the region's ecological resources that directly provide opportunities for public access, recreation and education • Number and diversity of people reached • Number and diversity of outreach materials developed • Measurable changes in knowledge or behavior 4.1 Promote comprehensive recreation planning and implementation with a focus on regional economic development • Number of collaboratively developed plans and assessments • Percent of planning efforts resulting in project implementation 4.2 Enhance river access points to encourage recreational use while managing for human impacts to watershed health • Number of collaboratively developed plans and assessments • Number of projects implemented 4.3 Create river corridor linkages while enhancing migration corridors for plants and animals • Number of collaboratively developed plans and assessments • Number of projects implemented

	4.4 Explore opportunities to increase water-dependent tourism throughout the region while building local communities' capacity to manage their recreational amenities • Number of collaboratively developed plans and assessments • Number of projects implemented 7.3 Foster partnerships to build the capacity of DACs and tribes throughout the region to manage their own recreational amenities • Number of projects developed or implemented • Number and diversity of people reached • Number and diversity of outreach materials developed • Number of collaboratively developed plans and assessments • Percent of planning efforts resulting in project implementation • Number of trainings conducted 7.4 Promote regional education and outreach in collaboration with DACs and tribes • Number and diversity of people reached • Number and diversity of outreach materials developed • Number of trainings conducted

CCXCIII. Resource Management Strategies

Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	x
Ecosystem Restoration	x
Forest Management	x
Land Use Planning and Management	x
Water-dependent Recreation	x
Watershed Management	x

CCXCIV. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project would assist the region in adapting to the effects of climate change by establishing migration corridors, and enhancing/protecting upper watershed forests.

GHG Emissions Reduction

This project does not mitigate for GHG emissions.

CCXCV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning			
Design			
Environmental Documentation (CEQA/NEPA)	TBD for project 2 and 3		
Permitting			
Tribal Consultation (if not applicable, indicate by N/A)			
Construction/ Implementation	Project 1 is ready to go and needs no permitting.		

CCXCVI.Project Technical Feasibility

ssss. List the water planning documents that specifically identify this project.	
tttt. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County General Plan Update Yuba County Parks Master Plan, adopted 2/19/2008
uuuu. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	

70. Have you completed an Urban Water Management Plan and submitted to DWR?	
71. Are you in compliance with AB1420?	
72. Do you comply with the water meter requirements (CWC Section 525)?	
73. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
31. Have you completed and submitted an AWMP?	
32. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
32. Has GWMP been completed and submitted for the subject basin?	
33. If not, will the GWMP be completed within one year of the grant submittal date?	

Yuba Salmon Education

SYRCL-04

CCXCVII. Project Sponsor Contact Information

Lead Agency/Organization	The South Yuba River Citizens League (SYRCL)
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue Suite 101, Nevada City, CA 95959
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	Yuba County Water Agency, University of California's Sierra Foothill Research and Extension Center, River Management Team

CCXCVIII. General Project Information

Project Title	Yuba Salmon Education
Project Total Budget	$75,000 for three years
Project Funding Match	$20,000
Project Funding Request	$75,000
Can a detailed cost estimate be provided upon request?	YES
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	All school districts in Yuba County prioritizing schools in DACs
Watershed/subwatershed	Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Restoration Best Management Practices

CCXCIX. Project Description

The primary goal of SYRCL's comprehensive K-12 Yuba Salmon Education Program is to educate schoolchildren throughout the IRWM region (with priority given to DACs) about the lifecycle of the salmon and what role salmon play in contributing to the ecological health of the Yuba River and the Bay-Delta system.

SYRCL's Yuba Salmon Education Program consists of the following sub-programs:

1. **"Journey of the Salmon" School Assembly**

Goal: The information learned will enable students to become better stewards of the Yuba watershed and to make well-informed decisions about salmon restoration when they are older.

Description: SYRCL has run a successful assembly program "Journey of the Salmon" teaching salmon lifecycle information to more than 100,000 students throughout California in just 7 years. The "Journey of the Salmon" Assembly teaches California State and National Science Standards adapted for different grade levels (K-8). The presentation uses hilarious audience participation, dramatic slides, exciting demonstrations and fun stories to keep students and teachers engaged while teaching them about the salmon lifecycle and salmon's place in the Yuba ecosystem.

2. Yuba Salmon Tours

Goal: This hands-on, experiential field based program will inspire students to become better stewards of the Yuba watershed and to make well-informed decisions about salmon restoration.

Description: The Salmon Tours take place on the Lower Yuba during salmon-spawning season and are day-long rafting tours, led by a professional rafting company and trained environmental educators. Participants are taught about salmon life cycle, habitat and river ecology. The Tours are one of the best ways for school children and adults to learn about Yuba salmon in a fun, experiential way.

3. Yuba Salmon Riverbank Excursions

Goal: The information learned will enable students to become better stewards of the Yuba watershed and to make well-informed decisions about salmon restoration. This program aims specifically to provide an accessible salmon viewing opportunity to schoolchildren and adults without the expense of a rafting trip.

Description: The Riverbank Excursion Program will be held at the "Yuba River Education Center" at the University of California's Sierra Foothill Research and Extension Center. The program educates students about salmon life cycle, habitat and river ecology at a place where salmon spawning is easily visible. This is an "on-land" option to learn about the Yuba's salmon. The location has a covered "outdoor classroom" and access to excellent spawning habitat without a raft.

CCC. Project Rationale/Issues Statement

The project addresses the following regional issues:

<u>Fisheries</u>

Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible.

<u>Environmental Flows</u>

At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems. This issue applies because the environmental flows are a complementary issue to fisheries that will be addressed in the Salmon Education Program

Fisheries have been identified by the RWMG as a conflict in the region, as stakeholders differ on how and where salmon should be recovered. SYRCL's Salmon Education Program enables stakeholders to learn about the Yuba's salmon in a variety of different venues and to decide for themselves about the issues involving salmon recovery.

CCCI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 3:** Preserve and restore watershed health and promote environmental stewardship; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions; **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region **Explanation:** SYRCL's Salmon Education Program addresses both conservation and ecological resource issues in the Yuba IRWM region. The program will be easily adapted to climate change education needs and we will work with a variety of stakeholders and School Districts in multiple DACs in the area.
Objectives Addressed by Project	Objective 1.8: Promote regional education and outreach regarding water supply issues and needs; Objective 3.7: Steward the region's ecological resource and directly provide opportunities for public access, recreation and education; Objective 6.5 Promote education about climate change/variability and its impacts on water management and watershed health throughout the region; Objective 7.4: Promote regional education and outreach in collaboration with DACs and tribes.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	1.8: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 3.7: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 6.5: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior 7.4: # and diversity of people reached; # and diversity of outreach materials developed; measurable changes in knowledge or behavior.

CCCII. Resource Management Strategies

Practice Natural Resources Stewardship	
Ecosystem Restoration	x
Water-dependent Recreation	x

Watershed Management	x

CCCIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The Salmon Education Program addresses adaptation to climate change through re-establishing floodplains and restoring salmon to the upper watersheds.

GHG Emissions Reduction

This project does not mitigate for GHG emissions.

CCCIV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Established Program		
Design	Established Program		
Environmental Documentation (CEQA/NEPA)	N/A		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	This is an ongoing program that needs no permitting		

	and is ready for immediate implementation.		

CCCV. Project Technical Feasibility

vvvv. List the water planning documents that specifically identify this project.	
wwww. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
xxxx. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
74. Have you completed an Urban Water Management Plan and submitted to DWR?	
75. Are you in compliance with AB1420?	
76. Do you comply with the water meter requirements (CWC Section 525)?	
77. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
33. Have you completed and submitted an AWMP?	
34. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
34. Has GWMP been completed and submitted for the subject basin?	
35. If not, will the GWMP be completed within one year of the grant submittal date?	

Yuba Salmon Habitat Restoration

SYRCL-05

CCCVI. Project Sponsor Contact Information

Lead Agency/Organization	SYRCL
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	USFWS, Yuba River Management Team, Teichert, Western Aggregates

CCCVII. General Project Information

Project Title	Yuba Salmon Habitat Restoration
Project Total Budget	$1,500,000
Project Funding Match	$465,000 in riparian enhancement on Hammon Bar (USFWS)
Project Funding Request	$1,000,000
Can a detailed cost estimate be provided upon request?	YES
Project Location:	Lower Yuba River (Englebright to Feather River)
Could you provide a map of the project location including boundaries upon request?	YES
Project Location Description:	The Lower Yuba River stretches from Englebright Dam to the confluence with the Feather River.
County	Yuba
Watershed/subwatershed	Lower Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Restoration Monitoring Best Management Practices Demonstration/Pilot Project

CCCVIII. Project Description

The legacy effects of mining have constrained the river channel, altered flows, and modified sediment and wood supply. Presently, there is very little riparian vegetation that extends beyond the fall base flow

channel edge. This limits the diversity and structure of riparian vegetation to shrubby willow species with very few larger riparian species.

SYRCL's Riparian Restoration Projects include the following sub-projects:

1. **Lower Yuba Large Wood Restoration Program**

The Goal: To place large wood (0.635 meters in diameter) strategically in the channel where it can be utilized by juvenile salmonid species as rearing habitat.

Description: Large wood placement increases instream structural diversity and provides refugia for juvenile salmonids. Because of significant modifications to the river floodplain, the Lower Yuba River (LYR) no longer supports large trees that historically provided this service.

2. **Lower Yuba Riparian Restoration**

The Goal: To plant riparian vegetation along the banks of the LYR to support juvenile salmon habitat and promote geomorphic heterogeneity on the floodplain.

Description: Restoring riparian habitat on the LYR increases plant diversity, creates refugia for juvenile salmonids, and has the long term benefit of increasing the amount of large wood to the river channel. Slower flows promote increased primary productivity and provide a slow moving, safe haven for juveniles to feed. Juvenile salmonids are more successful on floodplains where riparian vegetation slows down the winter floods.

3. **Lower Yuba Salmonid Rearing Habitat Enhancement**

Goal: To restore the connectivity of side channels to the river during fall base flows.

Description: Restoring the connectivity of side channels is a key to providing rearing habitat to juvenile salmonids on the LYR. This involves physically decreasing the elevation of side channels so that they connect to the river during fall base flows when fish spawning is at its peak and placement of large wood or boulders in these channels.

4. **Teichert Hallwood Floodplain Project**

Goal: To grade areas within active floodplain to provide additional fish habitat.

Description: Preliminary alternatives are being developed by the Yuba River Management Team and the U.S. Fish and Wildlife Service to enhance a 2.1 mile long floodplain area that is part of Teichert Industries' Hallwood Plant property and currently classified as "riparian reserves."

CCCIX. Project Rationale/Issues Statement

The project addresses the following regional issue:

Fisheries: Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible

CCCX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Objective 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Objective 3:** Preserve and restore watershed health and promote environmental stewardship **Objective 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat • Linear feet of stream bank protected or restored • Number and frequency of water quality monitoring and sampling • Acres of riparian habitat and/or floodplain protected or restored • Number of collaboratively developed plans and assessments 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible

	• Linear feet of stream bank protected or restored • Acres of riparian habitat and/or floodplain protected or restored • Number of projects developed or implemented • Acre feet per annum streamflow improved • Number of collaborative plans, assessments , studies developed • Increased monitoring, sampling and data analysis. 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species • Regulatory issues committee developed by xx year • Number and diversity of stakeholders participating in regulatory issues committee • Increased monitoring, sampling and data analysis 6.3 Increase system flexibility and resiliency to adapt to climate variability • Number of collaboratively developed plans and assessments • Number of projects developed or implemented • Number of adaptive strategies implemented in the region and inter-regionally

CCCXI. Resource Management Strategies

Practice Natural Resources Stewardship	
Ecosystem Restoration	x
Forest Management	x
Watershed Management	x

CCCXII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Enhanced floodplain ecosystems

Improve Tribal Water and Natural Resources

- Improve Tribal Water and Natural Resources and include the development of tribal consultation, collaboration, and access to funding for water programs

Climate Change Adaptation

Restoring habitat for anadromous salmonid species will promote a more resilient ecosystem and salmonid populations. Strong populations can better respond to the projected effects of climate change. Riparian vegetation, large woody debris, and side channel habitat all provide important refugia for juveniles, which is important to their survival during the extreme weather events that may be associated with earlier snowmelts. Earlier snowmelts are projected to occur when juveniles are in the early stages of development and especially vulnerable to being washed downstream. Additionally, ensuring that side channels connect with the river during fall base flows will support salmonids during spawning season, even during drought years. Increasing fish passage in the Lower Yuba River will also support the annual upstream migration of salmonids for spawning below Englebright dam.

GHG Emissions Reduction

Planting riparian tree species sequesters carbon as tree species mature and riparian forests are created. On average, restored riparian forest in California's Central Valley have been documented to sequester between 40,000 and 90,000 kg/ha (Vaghti, MG, Z Steel, RA Hutchinson, and JH Viers. 2013. Riparian Restoration, Biodiversity, and Carbon in Working Riverscapes. Report to Earthwatch Institute).

CCCXIII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Complete		
Design	Design required for individual projects		
Environmental Documentation (CEQA/NEPA)	Not yet complete		
Permitting	Required/not complete		
Tribal Consultation (if not applicable, indicate by N/A)	Ongoing		
Construction/ Implementation	Pending funding		

CCCXIV. Project Technical Feasibility

yyyy. List the water planning documents that specifically identify this project.	
zzzz. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
aaaaa. List technical reports and studies supporting the feasibility of this project.	1. Rehabilitation Concepts for the Parks Bar to Hammon Bar Reach of the Lower Yuba River (cbec, SYRCL, McBain & Trush 2010) 2. Lower Yuba River Riparian Enhancement Report (SYRCL 2013)
If you are an Urban Water Supplier:	
78. Have you completed an Urban Water Management Plan and submitted to DWR?	N/A
79. Are you in compliance with AB1420?	
80. Do you comply with the water meter requirements (CWC Section 525)?	
81. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	YES
If you are an Agricultural Water Supplier:	
35. Have you completed and submitted an AWMP?	N/A
36. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
36. Has GWMP been completed and submitted for the subject basin?	N/A
37. If not, will the GWMP be completed within one year of the grant submittal date?	

Lower Yuba Environmental Flows

SYRCL-06

CCCXV. Project Sponsor Contact Information

Lead Agency/Organization	SYRCL
Name of Primary Contact(s)	Rachel Hutchinson
Mailing Address	313 Railroad Avenue
Email Address	Rachel@syrcl.org
Phone	530-265-5961 x205
Project Partners/Collaborators	UC Davis, UC Merced

CCCXVI. General Project Information

Project Title	Lower Yuba Environmental Flows
Project Total Budget	$175,000
Project Funding Match	$60,000 (UC Merced)
Project Funding Request	$115,000
Can a detailed cost estimate be provided upon request?	YES
Project Location:	Lower Yuba River (Englebright to Feather River)
Could you provide a map of the project location including boundaries upon request?	YES
Project Location Description:	The Lower Yuba River stretches from Englebright Dam to the confluence with the Feather River.
County	Yuba
Watershed/subwatershed	Lower Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Monitoring Best Management Practices

CCCXVII. Project Description

We propose to develop a near-term decision-making platform for managing Yuba River infrastructure that specifically addresses long-term management needs, particularly environmental needs below Englebright. Specific design features of the decision support tool will include:

- Accurate and up-to-date prescriptive management rules
- Integration of water quantity and quality release as a single decision
- Optimization module for environmental releases based on expected reservoir temperature dynamics
- Optimization module for economics-driven operations (i.e., hydropower for Colgate Powerhouse)
- Simulation module for accurate reservoir temperature tracking
- Ability to incorporate optimal climate adaptation by incorporating both long-term uncertainty and anticipated ranges of hydroclimatic conditions in near-term decision-making
- Modeling transparency
- Consideration of stakeholder needs

CCCXVIII. Project Rationale/Issues Statement

The project addresses the following regional issue:

Fisheries: Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible

CCCXIX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Objective 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Objective 3:** Preserve and restore watershed health and promote environmental stewardship **Objective 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species 6.3 Increase system flexibility and resiliency to adapt to climate variability
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat • Linear feet of stream bank protected or restored • Number and frequency of water quality monitoring and sampling

	• Acres of riparian habitat and/or floodplain protected or restored • Number of collaboratively developed plans and assessments 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible • Linear feet of stream bank protected or restored • Acres of riparian habitat and/or floodplain protected or restored • Number of projects developed or implemented • Acre feet per annum streamflow improved • Number of collaborative plans, assessments , studies developed • Increased monitoring, sampling and data analysis. 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species • Regulatory issues committee developed by xx year • Number and diversity of stakeholders participating in regulatory issues committee • Increased monitoring, sampling and data analysis 6.3 Increase system flexibility and resiliency to adapt to climate variability • Number of collaboratively developed plans and assessments • Number of projects developed or implemented • Number of adaptive strategies implemented in the region and inter-regionally

CCCXX. Resource Management Strategies

Practice Natural Resources Stewardship	
Ecosystem Restoration	X
Forest Management	X
Watershed Management	X

CCCXXI. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Enhanced floodplain ecosystems

Improve Tribal Water and Natural Resources

- Improve Tribal Water and Natural Resources and include the development of tribal consultation, collaboration, and access to funding for water programs

Climate Change Adaptation

Restoring flows for anadromous salmonid species and riparian recruitment will promote a more resilient ecosystem and salmonid populations. Strong populations can better respond to the projected effects of climate change. Climate projections predict that the snowmelt from the Sierra Nevada will occur earlier, when juveniles are in the early stages of development and especially vulnerable to being washed downstream. Additionally, ensuring that side channels connect with the river during fall base flows will support salmonids during spawning season, even during drought years. Increasing fish passage in the Lower Yuba River will also support the annual upstream migration of salmonids for spawning below Englebright dam.

GHG Emissions Reduction (maximum 200 words)

This project does not mitigate for GHG emissions.

CCCXXII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Complete		
Design	N/A		
Environmental Documentation (CEQA/NEPA)	N/A		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending funding.		

CCCXXIII. Project Technical Feasibility

bbbbb. List the water planning documents that specifically identify this project.	
ccccc. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
ddddd. List technical reports and studies supporting the feasibility of this project.	3. Rheinheimer, DE. et al. 2013. Hydropower Costs of Environmental Flows and Climate Warming in California's Upper Yuba River Watershed. River Research and Applications. 4. Rheinheimer, DE. et al. In Press. Optimizing selective withdrawal from reservoirs to manage downstream temperatures with climate warming. Journal of Water Resources Planning and Management.
If you are an Urban Water Supplier:	
82. Have you completed an Urban Water Management Plan and submitted to DWR?	N/A
83. Are you in compliance with AB1420?	
84. Do you comply with the water meter requirements (CWC Section 525)?	
85. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	YES
If you are an Agricultural Water Supplier:	
37. Have you completed and submitted an AWMP?	N/A
38. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
38. Has GWMP been completed and submitted for the subject basin?	N/A
39. If not, will the GWMP be completed within one year of the grant submittal date?	

Hydrilla Eradication and Canal Lining

SCRCD-01

CCCXXIV. Project Sponsor Contact Information

Lead Agency/Organization	Sutter County Resource Conservation District (SCRCD)
Name of Primary Contact(s)	Juleah Cordi, District Manager
Mailing Address	1511 C Butte House Rd, Yuba
Email Address	Juleah.cordi@ca.nacdnet.net
Phone	(530) 674-1461 ext 130
Other Partnering Entities	Yuba County Agriculture Department and North Yuba Water District

CCCXXV. General Project Information

Project Title	Hydrilla Eradication and Canal Lining
Project Total Budget	$308,200.00
Project Funding Match	$77,050.00
Project Funding Request	$231,150.00
Can a detailed cost estimate be provided?	Yes
Project Location:	North Yuba Water District (NYWD)
Latitude	39-21'19'' N
Longitude	121-10'28'' W
Could you provide a map of the project location	Yes
Project Location Description:	Dobbins-Oregon House Canal
County	Yuba
City/Community	Dobbins/Oregon House
Watershed	Yuba River
Groundwater Basin	TBD
Project Type	Restoration Monitoring Best Management Practices Water Quantity

CCCXXVI. Project Description

The “Hydrilla Eradication and Canal Lining” Project will eradicate Hydrilla, a noxious and invasive aquatic plant species, from an earthen water conveyance ditch and line it with shotcrete to prevent re-infestation and conserve water.

The North Yuba Water District (NYWD) Dobbins-Oregon House Canal provides water to 800 acres of irrigated agriculture and serves as a vector of Hydrilla to other bodies of water throughout Yuba County.

To accomplish eradication, County and State Agricultural biologists will survey the ditch for Hydrilla using Global Positioning System (GPS) equipment to create Geographical Information System (GIS) maps downstream from locations already lined with shotcrete. NYWD will hire a Contractor to clear out and reshape the ditch. The NYWD contractor will line the ditch with shotcrete to a depth of approximately 4 inches. The project will complete a process started 10 years ago with CDFA WMA baseline funding. Up to 25,000 feet were eradicated and lined. The remainder of 6,700 feet needs to be finished to prevent Hydrilla from spreading beyond the ditch. Lining the canal with shotcrete will also drastically reduce the amount of water currently lost through seepage. The current water loss in the Dobbins-Oregon House Canal is between 50% and 60%.

CCCXXVII. Project Rationale/Issues Statement

Water Storage	Develop new water storage or identify alternatives to new storage that would increase water supply as a result of projected future uncertainty.
Water Use Efficiency/Water Conservation	Promote and implement policies and practices to increase water use efficiency and water conservation in municipal and agricultural sectors.
Water Quality Contamination: Urban and Agricultural Run-off	Maintain and improve water quality by mitigating for urban and agricultural runoff.
Sediment Management	Manage sedimentation to maintain and/or increase water-holding capacity in reservoirs, and to implement erosion control to prevent contamination in water courses and water management operations.
Invasive Species	Identify and manage for aquatic and terrestrial invasive species and Their impacts on water supply infrastructure and watershed health.

CCCXXVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	The central goals addressed by the Project are to eradicate Hydrilla, a noxious and invasive aquatic species, from a water conveyance ditch and to line the ditch with shotcrete to prevent re-infestation and reduce water loss. Specifically, the Project addresses the following regional goals: **Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions **Goal 7:** Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by the Project	The objectives addressed by the Project is to complete a process started 10 years ago to eradicate Hydrilla from 6,700 feet of a conveyance ditch and to line the ditch with shotcrete. Specifically, the Project addresses the following regional objectives:

	1.6 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary; 1.7 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.6 Preserve water supplies that support recreational opportunities and agricultural uses; 3.2 Identify and manage for aquatic and terrestrial invasive species and their impact on water supply infrastructure and watershed health; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations; 6.3 Increase system flexibility and resiliency to adapt to climate variability.
What performance metrics will be used to demonstrate that objectives are being met?	Performance metrics will be the number of feet treated as described above.

CCCXXIX. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	The Project prevents major water loss by seepage.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	The Project improves local and regional conveyance by lining of canals.
Increase Water Supply	
Surface Storage-- Regional/Local	The Project prevents major water loss by seepage.
Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	The Project eradicates an invasive species.
Ecosystem Restoration	The Project eradicates an invasive species.
Watershed Management	The Project eradicates an invasive species.

CCCXXX. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduction of Greenhouse Gas Emissions: Reduce energy consumption of water systems & uses
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The project assists the region in adapting to the effects of climate change by conserving existing water supplies, eradicating a noxious and invasive species that could spread, improving water use efficiency and fostering watershed health.

GHG Emissions Reduction

- The project offers the best water conservation option among project choices (e.g., greatest reuse/recycling, greatest reduction in leakage or evaporation per mile)
- The project increases conservation/reduce water use (and thus the energy and emissions related to its delivery)

CCCXXXI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date

Planning	Complete	Complete	Complete
Design	Complete	Complete	Complete
Environmental Docs	NA	NA	NA
Permitting	NA	NA	NA
Tribal Consultation	Complete	Complete	Complete
Construction/ Implementation	Eradicate Hydrilla Install Shotcrete	Fall 2014 Fall 2014	Spring 2016 Spring 2016

CCCXXXII. Project Technical Feasibility

eeeee. List the water planning documents that specifically identify this project.	1. CDFA Hydrilla Eradication Annual Report 2012 2. Hydrilla Eradication Project 2012 3. Hydrilla Eradication Action Plan 2012
fffff. List the adopted planning documents the proposed project is consistent with.	1. Yuba County General Plan 2012 3.Yuba Sutter Regional Conservation Plan 2013
ggggg. List technical reports and studies supporting the feasibility of this project.	1. The Threat of Hydrilla – CDFA 2010
If you are an Urban Water Supplier:	
86. Have you completed an Urban Water Management Plan & submitted to DWR?	Yes
87. Are you in compliance with AB1420?	Yes
88. Do you comply with the water meter requirements (CWC Section 525)?	NA
89. If the answer to any of the questions above is “no,” do you intend to comply prior to receiving project funding?	NA
If you are an Agricultural Water Supplier:	
39. Have you completed and submitted an AWMP?	No
40. If not, will you complete an AWMP prior to receiving project funding?	Yes
If the project is related to groundwater:	
40. Has GWMP been completed and submitted for the subject basin?	No
41. If not, will the GWMP be completed within one year of the submittal date?	Yes

Yuba County Airport Drainage Improvements

YC-01

CCCXXXIII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County
Name of Primary Contact(s)	Michael Lee
Mailing Address	915 8th Street, Suite 125, Marysville, CA 95901
Email Address	mlee@co.yuba.ca.us
Phone	530-749-5420
Project Partners/Collaborators	Reclamation District 784 Yuba County Water Agency

CCCXXXIV. General Project Information

Project Title	Yuba County Airport Drainage Improvements
Project Total Budget	$3,600,000
Project Funding Match	Local match would be a minimum of $900,000. The Yuba County Water Agency and Reclamation District 784 are other potential agencies that may contribute to the local match.
Project Funding Request	$2,700,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Yuba County Airport to 3,000 feet south along the railroad line west of the airport
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Drainage channels around the Yuba County Airport and south to Ella Avenue
County	Yuba
City/Community	Community of Arboga
Watershed/subwatershed	RD 784 Drainage Basin C
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Facility Construction Acquisitions

CCCXXXV. Project Description

This project includes canal and pipeline improvements at the Yuba County Airport and south to the Ella Basin, which is part of Reclamation District (RD) 784 Drainage Basin C. Project elements include bore

and jack approximately 1,000 feet of 72-inch pipes under the railroad at multiple locations between the southwestern corner of the airport to the Ella Basin in order to connect RD 784's Lateral 17 to Lateral 15. The project includes channel widening of Lateral 15 from the Ella Basin northward approximately 3,100 feet to the northern 72-inch pipe crossing of the railroad. Land acquisitions will be necessary to improve the channel along the railroad.

CCCXXXVI. Project Rationale/Issues Statement

The project will improve the flood protection of the Yuba County Airport property and neighboring properties by lowering the 100-yr flood elevation levels and removing properties from Special Flood Hazard Area Zone A. The project will provide public safety from flooding for the airport properties and improve the economic viability of the businesses within the Yuba County Industrial Zone at the airport. Neighboring property owners will benefit from the project by improving public safety from flooding.

The project specifically addresses the following identified regional issues:

Infrastructure

Develop new as well as repair and retrofit aging infrastructure

Water Quality Contamination: Urban and Agricultural Run-off

Maintain and improve water quality by mitigating for urban and agricultural runoff

Flood Management

Create multi-stakeholder coordination for flood management to achieve multiple economic and public safety benefits

Regulatory Compliance

Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration

Climate Change

Respond to projected climate change impacts on public safety and develop regional adaptive management strategies

CCCXXXVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	Goal 2: Protect, restore and enhance water quality for water users and in support of healthy watersheds; Goal 5: Protect public safety through integrated flood management.
Objectives Addressed by Project	2.1 Protect and improve water quality by mitigating for urban and sediment run-off; 2.2 Minimize water quality impacts from flood;

	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	• The lowering of the 100-yr flood elevation for the Airport and neighboring properties. • The lowering of downstream peak flows and water elevations during rain events. • The lowering of flood insurance rates for property owners in Olivehurst. This will be achieved by removing properties from Special Flood Hazard Areas which will reduce their insurance rates.

CCCXXXVIII.Resource Management Strategies

Improve Water Quality	
Urban Runoff Management	Project manages urban, sediment runoff
Improve Flood Management	
Flood Risk Management	Project reduces flood risks for the Airport and neighboring properties.

CCCXXXIX. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems

Climate Change Adaptation

The project assists the region in adapting to the effects of climate change by decreasing the flood risk of a major feature of the transportation system in Yuba County.

GHG Emissions Reduction

GHG emissions reduction strategies will be developed and considered during the design stage of the project.

CCCXL. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Drainage Study to benefit the Yuba County Airport	January 2005	December 2011
Design	One 72" pipe crossing has been designed. The other crossings still need to be designed- Conceptual/preliminary design		February 2012
Environmental Documentation (CEQA/NEPA)	TBD		
Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	TBD		

CCCXLI. Project Technical Feasibility

hhhhh. List the water planning documents that specifically identify this project.	RD 784 Master Drainage Plan (2005) Yuba County Development Drainage Plan (2011)
iiiii. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	RD 784 Master Drainage Plan (2005) and the Yuba County Development Drainage Plan (2011).
jjjjj. List technical reports and studies supporting the feasibility of this project.	Yuba County Development Drainage Plan

Linda Drainage Improvements

YC-02

CCCXLII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County
Name of Primary Contact(s)	Michael Lee
Mailing Address	915 8th Street, Suite 125, Marysville, CA 95901
Email Address	mlee@co.yuba.ca.us
Phone	530-749-5420
Project Partners/Collaborators	Yuba County Water Agency (possible partner to fund local match if required).

CCCXLIII. General Project Information

Project Title	Linda Drainage Improvements
Project Total Budget	$5,625,000
Project Funding Match	The Community of Linda is designated a disadvantaged community in the census data and may be eligible for the waiver since the project will directly reduce the severity of flooding for the Linda community. $1,407,000 if local match is required. Funds would be from the County's South Yuba Drainage fee. Other funding source could be from the Yuba County Water Agency.
Project Funding Request	$5,625,000 if local matched is waived. $4,218,000 if local match is required.
Can a detailed cost estimate be provided upon request?	No
Project Location:	The Community of Linda from Hammonton-Smartsville Road to south of Erle Road
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	The proposed projects are mostly in the easterly and southerly parts of the Community of Linda. Projects range from Hammonton-Smartsville Road to south of Erle Road and near Yuba Community College to east of Griffith Avenue.
County	Yuba
City/Community	Community of Linda

Watershed/subwatershed	Linda and Olivehurst Drains
Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Planning Facility Construction Acquisitions

CCCXLIV. Project Description

Projects components consist of environmental studies, engineering design, property acquisition, and facility construction on the following phases: 1) the linear detention channel (Eastside Interceptor) from Hammonton-Smartsville Road to the northern termini of the Orchard Detention Basin; 2) gravity drains from the southern termini of the Orchard Detention Basin to the Olivehurst Interceptor; 3) channelization and culvert improvements of the Olivehurst Drain from Wood Lane to Griffith Avenue at Linda Avenue, and 4) detention basin between Hammonton-Smartsville Road and North Beale Road north of Yuba Community College.

Phase 1 will construct a new channel that will drain runoff from the northeastern portion of the Linda Drain watershed and route the runoff south to the Orchard Detention Basin along the easterly side of the Community of Linda. The depth of the channel will average slightly more than 10 feet. The bottom width is about 45 feet and the top width is about 130 feet. Water quality features such as low flow channels and pools may be incorporated into the channel design.

Phase 2 will provide two 60-inch pipes to convey water along the south side of Erle Road from the southern termini of the Orchard Detention Basin westerly to the Olivehurst Interceptor.

Phase 3 will channelize the upper Olivehurst Drain and improve culverts from Wood Lane to Griffith Avenue at Linda Avenue. The bottom width of the channel will vary from six to eight feet. Culverts in the Olivehurst Drain will be improved to accommodate flows. A new 60-inch pipe will be installed from Griffith Avenue at Linda Avenue easterly to the Olivehurst Drain. This will connect the Olivehurst Drain to the northern end of the Orchard Detention Basin.

Phase 4 will construct a 6 acre detention basin that is 4 feet deep to collect flows in the Linda Drain. This detention basin could be used for a possible park feature such as a playing field. The basin will be constructed between Hammonton-Smartsville Road and North Beale Road north of the Yuba Community College.

CCCXLV. Project Rationale/Issues Statement

<u>Flood Management</u>

The project will improve the flood protection for the Community of Linda by constructing a channel to route upstream runoff to the east of the Linda Community and connect to an existing detention basin. The new 6 acre detention basin will also improve flood protection for the Community of Linda by

reducing downstream peak flows. These projects will reduce the amount of runoff that travels through Linda and reduce the 100-yr flood elevations.

Water Quality

The project will also improve water quality by mitigating urban and agricultural runoff. This will be achieved by implementing vegetated low flow channels and pools, where possible, within the channels that will filter urban runoff and absorb nutrients from agricultural runoff.

CCCXLVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	Goal 2: Protect, restore and enhance water quality for water users and in support of healthy watersheds Goal 3: Preserve and restore watershed health and promote environmental stewardship Goal 5: Protect public safety through integrated flood management Goal 7: Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by Project	2.1 - Improve water quality by mitigating for urban and agricultural runoff 3.4 Enhance floodplain function and habitat to achieve multiple flood management benefits 5.1Improve integrated flood management to increase flood protection 7.1 Support DAC project development/ implementation activities by providing ongoing outreach, proposal and funding development assistance and training
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	• The lowering of the 100-yr flood elevation in the Community of Linda. • The lowering of downstream peak flows and water elevations during rain events. • The lowering of flood insurance rates for property owners in Linda. This will be achieved by removing properties from Special Flood Hazard Areas which will reduce their insurance rates.

CCCXLVII. Resource Management Strategies

Improve Water Quality	
Pollution Prevention	Vegetated low flow canals will absorb pollutants reducing their loading.
Urban Runoff Management	Project manages urban runoff.
Improve Flood Management	
Flood Risk Management	Project reduces flood risks to the Community of Linda.

CCCXLVIII. Statewide Priorities

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

This project assists the region in adapting to the effects of climate change by providing greater flood protection and by mitigating for the water quality impacts associated with flood that could occur with more extreme weather events.

GHG Emissions Reduction

Construction-related GHG reduction strategies will be considered in the design phase of the project.

CCCXLIX. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Preliminary planning completed--South Yuba Drainage Master Plan, 2012		

Design	Conceptual design--South Yuba Drainage Master Plan, 2012		
Environmental Documentation (CEQA/NEPA)	TBD- pending funding		
Permitting	TBD- pending funding		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Awaiting funding		

CCCL. Project Technical Feasibility

kkkkk. List the water planning documents that specifically identify this project.	South Yuba Drainage Master Plan 2012
llllll. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County General Plan 2030 and the South Yuba Drainage Master Plan 2012
mmmmm. List technical reports and studies supporting the feasibility of this project.	South Yuba Drainage Master Plan 2012

Olivehurst Drainage Study and Improvements

YC-03

CCCLI. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County
Name of Primary Contact(s)	Michael Lee
Mailing Address	915 8th Street, Suite 125, Marysville, CA 95901
Email Address	mlee@co.yuba.ca.us
Phone	530-749-5420
Project Partners/Collaborators	Olivehurst Public Utility District (OPUD) and Yuba County Water Agency (possible partner to fund local match if required).

CCCLII. General Project Information

Project Title	Olivehurst Drainage Study and Improvements
Project Total Budget	$20,000,000
Project Funding Match	The Community of Olivehurst is designated as a disadvantaged community in the census data and may be eligible for the waiver for matching funds since the project will directly reduce the severity of flooding within the Community of Olivehurst. If local match is required then the amount would be $5,000,000. Yuba County Water Agency may provide funding for the local match.
Project Funding Request	$20,000,000 if no local match. $15,000,000 with local match.
Can a detailed cost estimate be provided upon request?	No
Project Location:	The Community of Olivehurst
Latitude	39.0956° N
Longitude	121.5522° W
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	The Community of Olivehurst north of McGowan Parkway, east of the Union Pacific Railroad, west of State Route 70, and south of the Horseman's Ditch (just north of Second Avenue).
County	Yuba
City/Community	Community of Olivehurst
Watershed/subwatershed	Yuba

Groundwater Basin	Yuba Groundwater Basin/South Yuba Sub-basin
Project Type	Planning Facility Construction Acquisitions

CCCLIII. Project Description

The project would update and implement the Lampman Drainage Study that was conducted in the 1970s. The drainage study determined the flow direction of surface runoff for streets within the Olivehurst Community. A drainage plan will be prepared from the study to identify the directional flows along streets within Olivehurst. The drainage plan will also determine where open roadside ditches are appropriate and where underground piping systems will be necessary. Additional right-of-way may need to be acquired to accommodate the drainage system.

The Project will be conducted in phases as follows:

Phase 1: Update and survey drainage patterns within Olivehurst to determine and verify the directional flows of surface runoff.

Phase 2: Design of the drainage system to collect and transport surface runoff.

Phase 3: Construct needed improvements to implement the drainage system.

CCCLIV. Project Rationale/Issues Statement

<u>Flood Management, Water Quality Protection, and Climate Change Adaptation and GHG Emissions Reduction</u>

Currently the Olivehurst area experiences localized flooding. Many streets lack proper drainage facilities (e.g. roadside ditches or curb and gutters) to drain surface runoff. This results in water ponding either along the roadway or on adjacent properties, affecting the use of these properties. Also, the localized flooding problems result in high infiltration rates into OPUD's sewer system. Infiltrated runoff is processed through OPUD's wastewater treatment plant, which increases the operational costs for OPUD by having to process the additional water. The implementation of this project would result in improved flood management for the Olivehurst Community and reduce energy use and operational costs for OPUD.

CCCLV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	Goal 2: Protect, restore and enhance water quality for water users and in support of healthy watersheds Goal 5: Protect public safety through integrated flood management

	Goal 6: Address climate vulnerabilities and reduce greenhouse gas emissions Goal 7: Promote equitable distribution of resources to disadvantaged communities and tribes across the region
Objectives Addressed by Project	2.2 Minimize water quality impacts from flood, effluent discharge and wastewater spills; 5.1 Improve integrated flood management to increase flood protection and enhance regional and inter-regional collaboration; 6.1 Support efforts to reduce greenhouse gas emissions in the region, particularly those related to water management operations; 7.1 Support DAC project development/ implementation activities by providing ongoing outreach, proposal and funding development assistance and training.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	• The reduction of flooding on properties within the Community of Olivehurst. • The reduction of runoff infiltrating into the OPUD sewer system and reduced amounts of water being treated at their wastewater treatment plant.

CCCLVI. Resource Management Strategies

Improve Water Quality	
Urban Runoff Management	Project manages urban runoff.
Improve Flood Management	
Flood Risk Management	This project will improve flood management.

CCCLVII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- Reduce Energy Consumption: Water system energy efficiency

Practice Integrated Flood Management

- Improved flood protection
- More sustainable flood and water management systems

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- Contain projects that address safe drinking water and wastewater treatment needs of DACs

Climate Change Adaptation

The project will reduce the amount water that infiltrates into OPUD's sewer system. This will reduce the amount of water that must be treated at OPUD's wastewater treatment plant which, in turn, will reduce their operational costs and electrical usage. This will reduce GHG needed to produce the electrical energy.

GHG Emissions Reduction

GHG emissions reduction strategies will be developed and considered during the design stage of the project.

CCCLVIII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CCCLIX. Project Technical Feasibility

nnnnn. List the water planning documents that specifically identify this project.	
ooooo. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
ppppp. List technical reports and studies supporting the feasibility of this project.	OPUD did prepare a study showing areas of high infiltration rates of runoff into their system

Olivehurst Pump Station

YC-04

CCCLX. Project Sponsor Contact Information

Lead Agency/Organization	County of Yuba
Name of Primary Contact(s)	Mike Lee, Public Works Director, County of Yuba
Mailing Address	915 8th St. Marysville, CA 95901
Email Address	Mlee@co.yuba.ca.us
Phone	(530) 742-5420
Project Partners/Collaborators	Reclamation District 784 (Operator of the Olivehurst Pump Station) Steve Fordice, General Manager Steve@rd784.org (530)742-0520 Patrick Meagher, Field Superintendent Patrick@rd784.org (530)742-0520

CCCLXI. General Project Information

Project Title	Olivehurst Pump Station
Project Total Budget	$25,000
Project Funding Match	Possible Disadvantaged Community Waiver
Project Funding Request	$25,000.00
Can a detailed cost estimate be provided upon request?	This is an approximate estimate only. If project moves forward for funding, a cost estimate will be provided by the RD784 Contracted Security firm which currently monitors other areas within the District / County
Project Location:	Plumas Arboga Rd. @ Hwy 70
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	Approximately .5 miles east of Arboga Rd, then north going through the levee gate to the pump station site
County	Yuba County
City/Community	Plumas Lake
Watershed/subwatershed	
Groundwater Basin	Yuba Groundwater Basin- South Yuba sub-basin
Project Type	Facility Construction Monitoring Best Management Practices

CCCLXII. Project Description

Installation of two types of security surveillance cameras: One Sonitrol PTZ (Point, Tilt, Zoom) security camera and one Night Hawk motion sensor security camera to enable personnel to capture video and still photo footage of the area to enhance security as well as provide remote monitoring of the pump station equipment and surrounding conditions, especially during flood season. The cameras would be part of an existing CCTV system already in place.

CCCLXIII. Project Rationale/Issues Statement

The site is vulnerable to theft and vandalism. The project would enhance security with new features such as a CCTV camera and a motion activated camera based intrusion alarm notifications. This pump station lifts water out of the Clark Lateral at the East end and into the Western Interceptor Canal. This pump station protects farmland, commercial, government and residential properties including the Olivehurst / Arboga communities. The project enables more site monitoring (Remotely) thus ensuring mechanical components (Pumps, Electrical Panels, etc) remain secure and in functioning order, especially during flood season.

CCCLXIV. Objectives/Outcomes/Performance Metrics

Goals Addressed by the Project	***Goal 5: Protect public safety through emergency and drought preparedness and integrated flood management***
Objectives Addressed by Project	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness
What performance metrics will be used to demonstrate that objectives are being met?	Lowering Flood / Danger / Risk for surrounding communities

CCCLXV. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Returns stormwater to the river
Practice Natural Resources Stewardship	
Land Use Planning and Management	Part of internal drainage system necessary for development of residential, commercial and industrial lands.

Recharge Areas Protection	Protects basin infrastructures.
Improve Flood Management	
Flood Risk Management	Internal Drainage Flood Management that protects water treatment, water conveyance and ground water recharge facilities.

CCCLXVI. Statewide Priorities

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

Phase I: Installation of the security cameras to enable personnel to have access to remote monitoring of the pump station equipment and surrounding conditions, especially during flood seasons during extreme weather to enable field staff to monitor more territory more efficiently. The camera system could prevent the pump station from becoming disabled due to vandalism when critically needed. This pump station has been damaged in the past.

GHG Emissions Reduction

The entire facility has to be hardened against theft and vandalism.

CCCLXVII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Duplicate from other sites		
Design	Duplicate from other sites		
Environmental Documentation (CEQA/NEPA)			
Permitting			
Tribal Consultation (if not applicable, indicate by N/A)	N/A		

Construction/ Implementation	Pending Funds	Pending Funds	Unknown

CCCLXVIII. Project Technical Feasibility

qqqqq. List the water planning documents that specifically identify this project.	
rrrrr. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
sssss. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
90. Have you completed an Urban Water Management Plan and submitted to DWR?	NA
91. Are you in compliance with AB1420?	
92. Do you comply with the water meter requirements (CWC Section 525)?	
93. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
41. Have you completed and submitted an AWMP?	NA
42. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
42. Has GWMP been completed and submitted for the subject basin?	NA
43. If not, will the GWMP be completed within one year of the grant submittal date?	

Yuba County Water Agency Groundwater Model Phase Two

YCWA-01

CCCLXIX. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703
Project Partners/Collaborators	YCWA member units

CCCLXX. General Project Information

Project Title	Yuba County Water Agency Groundwater Model Project Phase Two
Project Total Budget	$750,000
Project Funding Match	25% match proportionally contributed by member units
Project Funding Request	$562,500
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Regional (see description below)
Latitude	N/A
Longitude	N/A
Could you provide a map of the project location including boundaries upon request?	Yes
Project Location Description:	The study area for this Project will include, at a minimum, the groundwater subbasins beneath Yuba County, consisting of the portion of the North Yuba Groundwater Subbasin (California Department of Water Resources [DWR] Basin 5-21.60) within Yuba County and the entire South Yuba Groundwater Subbasin (DWR Basin 5-21.61). Both subbasins are part of the larger Sacramento River Groundwater Basin (DWR Basin 5-21). Adjacent groundwater subbasins will be included in the model as necessary to develop a technically sound groundwater model.
Project Type	Planning Study/Assessment Monitoring Best Management Practices

CCCLXXI. Project Description

This project seeks funding for the second and final phase to develop a groundwater model for Yuba County.

The first phase of the project has been funded through the DWR Local Groundwater Assistance Grant Program and will accomplish the following outcomes:

- review and summarize existing groundwater modeling codes and studies,
- based on the review, select a modeling code that is well suited to meet the goal of the Project,
- update the existing hydrogeologic conceptual model for the groundwater basins in Yuba County,
- develop input datasets for the selected model,
- run and calibrate the groundwater model, and
- document the model development process, all input data sets, adequacy of model calibration, and limitations and suggestions for future use.

The second and final phase of the groundwater model will address data gaps that were identified in phase one and would utilize historical data and apply the model to future scenarios that have significant implications for managing the region's groundwater resources.

Additionally, in order to further inform effective decision-making, phase two would find linkages between the Yuba County Groundwater Model and the WEAP modeling effort being conducted in conjunction with the Yuba County IRWMP Update.

YCWA takes an active role in managing the groundwater resources of Yuba County. As part of the management program, YCWA conducts extensive monitoring of the groundwater system. Monitoring data is collected, stored in a data management system, and used on a continual basis to guide management of the resource. YCWA publishes an annual monitoring report, and meets routinely with member units to plan for groundwater substitution transfers. The existing methods and tools for

analysis (i.e., individual well hydrographs, groundwater elevation maps, and the groundwater adaptive management tool (GWMT) have been adequate for planning purposes to date, but do not fully leverage existing data. An adequately designed and calibrated groundwater model provides an additional, and defensible "line of evidence" to ensure continued success of the groundwater management program.

CCCLXXII. Project Rationale/Issues Statement

A groundwater model would be an important addition to YCWA's "tool box" for analyzing groundwater conditions in Yuba County. Development of a groundwater model was identified as a direct management action in the GWMP under the component category associated with groundwater sustainability. The GWMP states that increased understanding of how groundwater responds to various stressors (e.g., pumping, changes in aquifer recharge, and changes in climate) is critical to ensuring the

long-term sustainability of the resource. One area where additional, robust analytical tools will be crucial is planning for future groundwater substitution transfers. Requirements for groundwater substitution transfer planning under the Yuba Accord, as stated in the Water Purchase Agreement (WPA), require YCWA to determine "the amount of water that can be pumped within the safe yield of the basin without contributing to long-term overdraft and without resulting in significant unmitigated impacts to other groundwater users in the basin." The WPA specifies that such determination will be made in the spring of the year during which groundwater substitution transfers are planned.

In an attempt to meet the above requirements, YCWA developed the Groundwater Adaptive

Management Tool (GAMT) in 2008. The GAMT includes a set of response and recovery functions for each analysis unit (e.g., each member unit or hydrologic unit) that were developed as statistical relationships between historical pumping, precipitation, and water levels in dedicated monitoring wells distributed throughout the basin. The response and recovery functions are used to predict water-level response (i.e., drawdown and recovery) to pumping volumes in the analysis unit.

While the GAMT has been successfully applied for groundwater management planning, it has several limitations. First, the GAMT generates a predicted response for the entire analysis unit. For example, the response and recovery functions may predict a drawdown of 15 feet in response to a given member unit's planned pumping. However, the prediction does not account for spatial variations in drawdown within a member unit. Second, each response and recovery function does not explicitly consider the effects of pumping or other stressors outside of the analysis unit. In other words, the predicted drawdown in response to pumping does not consider pumping from adjacent, and often hydraulically connected, analysis units. A three-dimensional groundwater model is well suited to the purpose of supporting groundwater management analysis, and would represent a significant improvement on the existing GAMT.

CCCLXXIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	1.8 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary;

	1.9 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.10 Protect and restore water supplies that support watershed health; 1.11 Promote disaster preparedness and conservation planning efforts; 1.6 Preserve water supplies that support recreational opportunities and agricultural uses; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 1.8 Promote regional education and outreach regarding water supply issues and needs; 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	TBD

CCCLXXIV. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	A groundwater model will support the continued, successful implementation of the Lower Yuba River Accord and groundwater substitution transfers.
Improve Water Quality	
Pollution Prevention	One criterion that will be evaluated during model application is the prevention of upwelling of poor quality water into the fresh water aquifer (i.e., from below the base of fresh groundwater).

Practice Natural Resources Stewardship	
Land Use Planning and Management	Better understand how changing land use (e.g., agriculture to residential) in Yuba County could impact groundwater resources.
Recharge Areas Protection	During development and application of the groundwater model, information will be compiled and calculated that will result in quantification of groundwater recharge from such sources as infiltration of precipitation, infiltration of applied water, and recharge from surface water bodies.

CCCLXXV. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Efficient groundwater basin management

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

The development of a groundwater model as previously described would provide the region with a more flexible tool in making well informed water planning and management decisions, particularly in the face of a changing, variable climate. Groundwater overdraft is considered a significant vulnerability in the Yuba County region. Particularly in light of the many uncertainties presented by climate change, a groundwater model would be an invaluable tool for the region to safeguard continued effective and sustainable conjunctive management and in meeting the requirements of the Water Purchase Agreement under the Lower Yuba River Accord.

GHG Emissions Reduction

Since this project does not entail construction activities, GHG considerations are not particularly relevant to the project design.

CCCLXXVI. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date

Planning	Phase 1- funded through LGA Grant Program		2015
Design	Phase 1- funded through LGA Grant Program		2015
Environmental Documentation (CEQA/NEPA)	N/A		
Permitting	N/A		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	N/A		

CCCLXXVII. Project Technical Feasibility

ttttt. List the water planning documents that specifically identify this project.	YCWA Groundwater Management Plan
uuuuu. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	YCWA Groundwater Management Plan Lower Yuba River Accord YCWA Agricultural Water Management Plan
vvvvv. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
94. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
95. Are you in compliance with AB1420?	See above.
96. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
43. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
44. Has GWMP been completed and submitted for the subject basin?	Yes

Irrigation Water Measurement Implementation

YCWA-02

CCCLXXVIII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703
Project Partners/Collaborators	YCWA Member Units: Brophy Water District, Browns Valley Irrigation District, Cordua irrigation District, Dry Ceek MWC, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District, Wheatland Water District

CCCLXXIX. General Project Information

Project Title	Irrigation Water Measurement Implementation
Project Total Budget	$580,700
Project Funding Match	25% Local Match
Project Funding Request	$435,525
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Regional- various locations within the jurisdictions of member units (named above)
Latitude	N/A
Longitude	N/A
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Various
Watershed/subwatershed	Yuba, Feather, Bear
Groundwater Basin	Yuba Groundwater Basin
Project Type	Facility Construction Monitoring

CCCLXXX. Project Description

The project would implement YCWA's SBx7-7-required irrigation water measurement plan with the addition of a SCADA system to automate data acquisition and dissemination.

This proposal defines the tasks associated with improving the water measurement infrastructure of the Agency for the following purposes:

1. Making the customer delivery measurement sites compliant with CCR 23 §597 and "SCADA Ready;"
2. Improving accuracy of drain outflow measurement sites to decrease uncertainty in water balance results.

The project's scope of work consists of three tasks: (1) North Side Customer Delivery Compliance Improvements, (2) South Side Customer Delivery Compliance Improvements, and (3) Drain System Improvement. Task 3 would be implemented in two phases. Phase I would entail installation of gaging stations at the five primary drain outflow measurement locations identified in the Measurement Improvement Plan (Appendix E of the Agency's AWMP) with minimal channel modifications. After the Phase I improvements have been made and data has been collected for a sufficient period (e.g. 1 year), the quality of data will be review for each site. If Phase I improvements fail to yield sufficiently accurate and reliable flow data, the Phase II improvements will be implemented. The main focus of Phase II improvements will be to modify the channel to provide improved measurement conditions. The range of potential options for channel improvements include (but are not limited to) (1) rip-rap and rock modifications, (2) construction of a measurement weir (or check structure) perpendicular the primary flow direction or (3) construction of a 50' lined section.

CCCLXXXI. Project Rationale/Issues Statement

The 2009 Water Conservation Act requires a statewide 20% reduction in urban per capita water use by 2020. It requires that urban water retail suppliers determine baseline water use and set reduction targets according to specified requirements, and requires agricultural water suppliers prepare plans and implement efficient water management practices.

The Comprehensive Water Package passed by the California State legislature in November 2009 consists of four policy bills and an $11.14 billion water bond. One of the policy bills (Senate Bill x7-7 or SBx7-7) addresses both urban and agricultural water conservation and, with respect to agriculture, includes new requirements regarding (1) agricultural water management planning and (2) the accuracy of customer delivery measurement, applicable to agricultural water suppliers serving more than 25,000 acres.

In response to SBx7-7, and the resulting measurement regulation (CCR 23 §597), Yuba County Water Agency prepared an Agricultural Water Management Plan (AWMP). Part of the AWMP was the preparation of a Measurement Improvement Plan (MIP). This project implements the actions identified in the MIP.

In addition to fulfilling **regulatory compliance**, this project addresses the identified regional issue of **water use efficiency and water conservation**.

CCCLXXXII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions.
Objectives Addressed by Project	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	TBD

CCCLXXXIII. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	Compliance with SBx7-7 and CCR 23 §597 to achieve long term reduction in agricultural water use.
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	Improve accuracy of drain outflow measurement sites to decrease uncertainty in water balance results.

CCCLXXXIV. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency

Climate Change Adaptation

By implementing the MIP, Yuba County Water Agency complies with the legislative and regulatory requirements resulting from the Water Conservation Act of 2009. In doing so, the region is adapting to the projected impacts of climate variability by instituting systems to accurately measure agricultural water use and, in turn, to work towards long term reductions in agricultural water use. Such actions promote greater resiliency under extreme conditions, such as prolonged drought.

GHG Emissions Reduction

The project increases conservation/reduce water use and thus the energy and emissions related to its delivery.

CCCLXXXV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	As outlined in Davids Engineering, Inc. Scope of Work		Complete
Design	As outlined in Davids Engineering, Inc. Scope of Work		
Environmental Documentation (CEQA/NEPA)	TBD		
Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Actively seeking funding		

CCCLXXXVI. Project Technical Feasibility

wwwww. List the water planning documents that specifically identify this project.	YCWA Agricultural Water Management Plan (AWMP)
xxxxx. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	YCWA Agricultural Water Management Plan YCWA Groundwater Management Plan
yyyyy. List technical reports and studies supporting the feasibility of this project.	Measurement Improvement Plan Implementation for SBx7-7 Compliant and SCADA Ready Customer Delivery Measurement Sites and Improved Boundary Outflow Measurements, Proposed Scope of Work, Davids Engineering, Inc., July 2013
If you are an Urban Water Supplier:	
97. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
98. Are you in compliance with AB1420?	See above.
99. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
44. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
45. Has GWMP been completed and submitted for the subject basin?	Yes

New Bullards Bar Outlet Capacity Increase
YCWA-03

CCCLXXXVII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CCCLXXXVIII. General Project Information

Project Title	New Bullards Bar Outlet Capacity Increase
Project Total Budget	$37,230,000
Project Funding Match	$9,307,500 -Yuba County Water Agency
Project Funding Request	$27,922,500
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	New Bullards Bar Dam
Latitude	39.3933° N
Longitude	121.1431° W
Could you provide a map of the project location including boundaries upon request?	Yuba
County	Yuba
City/Community	Dobbins
Watershed/subwatershed	Yuba/North Yuba
Groundwater Basin	Hard Rock Aquifer
Project Type	Facility Construction

CCCLXXXIX. Project Description

The purpose of this project is to reduce Yuba River peak flood flows by creating more usable flood storage space in New Bullards Bar Reservoir. This is accomplished by increasing the outlet capacity so that more water can be evacuated from the reservoir in advance of the peak flood flow.

The project would increase outlet capacity by 20,000 cubic feet per second (cfs) at the bottom of the

current flood pool level and at higher reservoir stages. This project will enhance the Forecasted-Coordinated Operations (F-CO) of New Bullards Bar Reservoir.

Through increasing the outlet capacity by 20,000 cfs, 300,000 acre-feet of rededicated flood storage would be the maximum effective amount.

Adequate release capacity at reservoir stages lower than the bottom of the flood pool is needed in the optimization of flood release operations. In increasing outlet works, capacity would provide additional release capacity. This would entail constructing a new tunnel through the left abutment and south of the existing spillway. The tunnel would be 540-feet long, 25 feet wide, and 26 feet in height.

Outlet construction would require excavation in the upper left abutment area of the dam site. A construction access road would be built from the abutment area down to the outlet area to serve tunnel construction. Tunnel construction would start from the downstream portal and would continue toward the upstream portal. The tunnel would create 14,000 cubic yards of rock spoils created by staged drill and blast excavation methods. After excavation, the tunnel would belined with reinforced concrete. It is anticipated that excavation for the intake structure would be performed concurrently with access road construction and/or tunnel excavation. A natural cofferdam would be left in place in the inlet approach channel to protect the construction work and prevent an uncontrolled release of reservoir water through the excavation area and tunnel. The cofferdam would be removed and the approach channel and inlet training walls constructed during a low reservoir period when the intake structure approaches completion.

CCCXC. Project Rationale/Issues Statement

This project principally addresses the regionally identified issue of flood management and would:

- Improve integrated flood management to ensure better emergency preparedness; and,
- Increase flood protection.

Additionally, the project further addresses the issue of climate change by providing an adaptive management strategy to respond to public safety threats posed by flood caused by extreme storm events and will improve regional and inter-regional emergency preparedness and coordination efforts.

CCCXCI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions

Objectives Addressed by Project	a. Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; b. Support regional and inter-regional collaboration to improve drought and emergency preparedness; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	TBD

CCCXCII. Resource Management Strategies

Improve Flood Management	
Flood Risk Management	The purpose of this project is to reduce Yuba River peak flood flows by creating more usable flood storage space in New Bullards Bar Reservoir and would improve the Forecasted- Coordinated Operations.

CCCXCIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

<u>Climate Change Adaptation</u>

The project promotes climate change adaptation by responding to public safety threats posed by flood caused by extreme storm events. Additionally, the project will foster regional and interregional collaboration through improving the Forecasted- Coordinated Operations.

<u>GHG Emissions Reduction</u>

GHG emissions reduction strategies have yet to be considered. They will be addressed in the design stage of project development.

CCCXCIV. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Preliminary planning conducted through engineering feasibility study (see technical reports below).		June 2003
Design	Preliminary design conducted through engineering feasibility study (see technical reports below.)		June 2003
Environmental Documentation (CEQA/NEPA)	TBD		
Permitting	Relevant permits identified through feasibility study (see technical reports below).		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending available funding		

CCCXCV. Project Technical Feasibility

zzzzz. List the water planning documents that specifically identify this project.	
aaaaaa. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Draft Feather River Regional Flood Management Plan Central Valley Flood Protection Plan
bbbbbb. List technical reports and studies supporting the feasibility of this project.	Flood Control Study Team, Report on Feasibility of Yuba-Feather Supplemental Flood Control Project, YCWA, June 2003

	Forecasted Coordinated Operations of Lake Oroville and New Bullards Bar Reservoir for Managing Major Flood Events
If you are an Urban Water Supplier:	
100. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
101. Are you in compliance with AB1420?	See above.
102. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
45. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
46. Has GWMP been completed and submitted for the subject basin?	Yes

North Area Irrigation Water Reuse

YCWA-04

CCCXCVI. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703
Project Partners/Collaborators	Hallwood Irrigation Company (and other member units?)

CCCXCVII. General Project Information

Project Title	North Area Irrigation Water Reuse
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	Component #1: $175,000 Component #2: between $20,000-$80,000 (depending on choice of design) Component #3: $90,000 (rough estimate)
Can a detailed cost estimate be provided upon request?	No
Project Location:	Jack Slough
Latitude	39.1585029
Longitude	-121.609411
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Hallwood Irrigation Company District Boundary
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin/ North Yuba Sub-basin
Project Type	Facility Construction Best Management Practices

CCCXCVIII. Project Description

This irrigation system improvement project would accomplish the following:

1. Operate the canal, ditches, and laterals in a much more flexible and reliable manner.

2. Simplify the operation for the ditchtender.

3. Reduce spills at the ends of laterals.

4. Recirculate water that is presently entering the district in Jack Slough.

5. Replace two aging flumes.

6. Reduce diversions from the Yuba River. A rough estimate of this reduction is 40-50 CFS, based on additional well usage, decreased spill, and pumping from Jack Slough.

A detailed description of project components is as follows:

1. Changing the Main Ditch Crossing of the Jack Slough

This project component entails several physical changes, all of which would work together to provide flexibility. The basic idea is:

a. If excess flow came down the Main Ditch, it would spill into Jack Slough.

b. If insufficient flow came down the Main Ditch, a pump would automatically deliver water from Jack Slough.

By cleaning out the Main Ditch downstream of the Drier Ditch to the Jack Slough crossing,

replacing the deteriorating flume, and raising the banks, the water depth on the downstream side of the Jack Slough crossing could be raised by about 1.5'. The Main Ditch flow rate would be "restarted" downstream of the new Jack Slough crossing. An automatic sluice gate would automatically maintain a desired target flow rate even though the upstream water level would change with time.

If excess flow arrived from upstream, the water level would rise until it would trigger the opening of an ITRC Flap Gate, which would automatically spill into the Slough and prevent the water level from rising more. This flap gate would be designed to pass a maximum of 50 CFS. There are about 200 ITRC Flap Gates working in irrigation districts in California as automated check structures or as automated spills.

If the water level dropped below a second lower target elevation, a pump in the Slough would automatically turn on to add extra water to the canal. If the water level rose to slightly lower than the opening level of the flap gates, the pump would shut off. It is envisioned that this pump would be able to supply 20 CFS.

2. Modification of Main Ditch Check Structures

The second major change would be a modification of Main Ditch check structures between the split point to the Handy and Hwy 20 Ditches and the Drier Ditch.

Key elements include:

• Sluice gates would be installed at the entrance to the Handy and Hwy 20 Ditches.

• A long-crested weir would be installed in the Main Ditch where the Main Ditch diverges from the Handy and Hwy 20 ditches. The impact of the sluice gates at the Handy and Hwy 20 Ditches, and this long-crested weir, would be that all fluctuations in flow would go down the Main Ditch towards the Jack Slough crossing.

• The Main Ditch check structure at the Drier Ditch entrance would be converted to a long-crested weir.

• Perhaps 3-5 other check structures enroute would be converted to long-crested weirs or to ITRC Flap

3. Real-Time Management of Well Pumps as a Buffer Supply

The third major modernization change would involve real-time management of well pumps as a buffer supply. Active manipulation of wells along the Main Ditch (downstream of Hwy 20) to add/subtract water as needed, plus other wells along some laterals could provide excellent flexibility plus conserve water. At the moment, farmer wells are being used as *substitution* water. However, there is another possibility that is relatively inexpensive (compared to other options): using wells as "a readily available and flexible supply" to compensate for fluctuating flows lower in the system. The water table in the district is relatively high, meaning the expense of pumping from wells is relatively low. The district could install a system of new wells to supplement surface water "as needed" on an hourly basis – a completely different concept than substituting surface water for a week or months. If the well pumps were equipped with automatic sensors and variable frequency drive (VFD) controllers, it would be possible to start and stop the pumps slowly (maintaining a long life on the wells), and to deliver precisely the flow rate needed to augment temporary shortages. A good strategy for the district would be to deliver about 2 CFS less than needed down each of several laterals. A flow control gate (manual sluice gate) could be installed about half the way (to ⅔ the way) down each lateral. Well pumps would sense the water level upstream of the flow control gate, and would automatically supply water that is lacking. On the other hand, if users upstream in the laterals shut off early, that water would not be wasted because the VFD pumps would reduce their flows.

The additional measures for long term include the following:

• SCADA for remote monitoring. This would be relatively simple monitoring of water levels over weirs at the downstream ends of laterals and ditches, monitoring of spill and pumping at the Jack Slough crossing under the Main Ditch, and monitoring wells in option #3. Technology now allows the ditchtender to see the status of these points via a Palm Pilot, cell phone, or hardened laptop.

• Pipelining some additional laterals. In particular, some of the laterals in the permanent crop areas are small and difficult to manage.

CCCXCIX. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Infrastructure
Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply

Water use Efficiency and Conservation
Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

Groundwater
Promote integrated management of groundwater and surface water

Water Quality Contamination: Urban and Agricultural Run-off
Maintain and improve water quality by mitigating for urban and agricultural runoff

Environmental Flows
At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems

Climate Change
Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

CD. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 4:** Enhance regional economic development by supporting recreational opportunities and sustainable agriculture **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	1.1 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary; 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation

	efficiencies, municipal water conservation, water recycling and reuse; 1.3 Protect and restore water supplies that support watershed health; 1.6 Preserve water supplies that support recreational opportunities and agricultural uses; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 4.5 Protect and restore working landscapes, particularly ranch/ag lands, and the watershed benefits they provide; 6.3 Increase system flexibility and resiliency to adapt to climate variability.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes	TBD

CDI. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	system-wide physical changes and improvements to reduce water loss and spills in the system
Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	system-wide physical changes and improvements to increase operational efficiency
System Reoperation	modernization and SCADA to re-operate system, improving efficiency
Water Transfers	reduces diversions from the Yuba River. A rough estimate of this reduction is 40-50 CFS, based on additional well usage, decreased spill, and pumping from Jack Slough
Increase Water Supply	
Conjunctive Management and Groundwater	installs a system of new wells to supplement surface water “as needed” on an hourly basis
Recycled Municipal Water	re-circulates water that is presently entering the district in Jack Slough

CDII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management
- System interties

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

<u>Climate Change Adaptation</u>

This project takes a comprehensive approach in responding to the range of water supply climate change vulnerabilities in the region. By improving operational efficiency, expanding conjunctive management, reusing water and reducing the system's energy consumption, the project achieves long term reduction in water use.

<u>GHG Emissions Reduction</u>

The project is currently in a conceptual stage and has yet to consider climate GHG emissions reduction

strategies. However, the project mitigates for GHG by improving operational efficiency and reducing system-wide energy consumption.

CDIII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning			
Design			
Environmental Documentation (CEQA/NEPA)			
Permitting			
Tribal Consultation (if not applicable, indicate by N/A)			
Construction/ Implementation			

CDIV. Project Technical Feasibility

cccccc. List the water planning documents that specifically identify this project.	
dddddd. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County Groundwater Management Plan Yuba County Agricultural Water Management Plan Lower Yuba River Accord
eeeeee. List technical reports and studies supporting the feasibility of this project.	Hallwood Irrigation Company Rapid Appraisal Process (RAP) Report
If you are an Urban Water Supplier:	
103. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
104. Are you in compliance with AB1420?	See above.
105. Do you comply with the water meter requirements (CWC Section 525)?	See above.

If you are an Agricultural Water Supplier:	
46. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
47. Has GWMP been completed and submitted for the subject basin?	Yes

South Yuba Canal Fish Screen

YCWA-05

CDV. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDVI. General Project Information

Project Title	South Yuba Canal Fish Screen
Project Total Budget	$10,830,000
Project Funding Match	$2,710,208 Local Match
Project Funding Request	$8,119,792
Can a detailed cost estimate be provided upon request?	Yes
Project Location:	Daguerre Point Dam/South Yuba Canal
Latitude	39.2087354
Longitude	-121.4439211
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	N/A
Watershed/subwatershed	Yuba/lower Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Facility Construction

CDVII. Project Description

The project will result in construction of a fish screen at the South Yuba Canal on the lower Yuba River that is compliant with Federal Fish Screen Criteria requirements and will include design features to minimize erosion of the existing island feature that would protect the screen itself from erosion or peak flow-related damage.

The fish screen replacement project is currently active and in the feasibility assessment phase in preparation for initiating the CEQA and environmental documentation process.

Project objectives are to construct and operate a replacement fish screen that will most effectively meet fishery and water service needs, specifically: a fish screen that meets applicable state and federal fish screen criteria; reasonable certainty that a fish screen that meets criteria will be implemented in a reasonable time frame; a fish screen that provides reliable long-term water diversions; a fish screen design that minimizes capital and operation and maintenance costs; a fish screen that minimizes risks due to flood damage and that minimizes flood damage repair/replacement costs; a fish screen that complies with requirements under the BO, D1644, federal and state Endangered Species Act, and other applicable statutory, regulatory and permit requirements; a fish screen that provides the basis for a new, long-term incidental takes permit under the federal Endangered Species Act; and a fish screen improvement process that preserves, as applicable, rights and obligations under existing agreements, e.g., Agreement South Yuba Water District/Department of Fish and Game February 1984 dated March 9, 1984 between the Department and South Yuba Water District, and water service facilities agreements between the Agency and South Districts.

CDVIII. Project Rationale/Issues Statement

The need for study of a replacement of the gabion fish screen on the South Yuba Canal has been under consideration for many years. The need was part of the testimony in the hearings by the State Water Resources Control Board which led to Water Right Decision 1644 (D-1644), July 16, 2003. That decision requires local consultation with the Department of Fish and Wildlife (DFW), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and U.S. Fish and Wildlife Service (USFWS) to develop plans to reduce fish losses resulting from diversion of water into the South Yuba Canal. In 2002, NOAA Fisheries approved a Biological Opinion (BO) under the federal Endangered Species Act (ESA) requiring development of a long-term plan to screen the South Yuba Canal consistent with state and federal criteria. (The BO was addressed to the U.S. Corps of Engineers which owns the land on which the screen is located, but compliance rests with their licensee, formerly South Yuba Water District, but now Yuba County Water Agency (YCWA), which purchased the canal and diversion structure from South Yuba Water District.)

Consultation on fishery issues with designated agencies and 13 other interested parties led to the Lower Yuba River Accord (Accord), a collaborative settlement initiative. While the Accord does not specifically deal with the South Yuba Canal fish screen, its construction will help fulfill the objectives of the Accord.

This project addresses the regionally identified issues of **fisheries** and **regulatory compliance**, which were also identified as conflicts with in the Yuba County IRWM region. The project also addresses **sediment management** by addressing the significant erosion challenges associated with the island feature in the project area.

CDIX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds **Goal 3:** Preserve and restore watershed health and promote environmental stewardship **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	2.1 Protect and improve water quality by mitigating for sediment run-off; 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 3.6 Support environmental protections to prevent the extinction of economically and culturally significant species; 3.7 Steward the region's ecological resources that directly provide opportunities for public access, recreation and education while maintaining the co-equal objectives of flood protection and preservation of agricultural lands; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	TBD

CDX. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	The project modifies an existing local and regional conveyance facility on the lower Yuba River while addressing fisheries concerns.
Improve Water Quality	
Pollution Prevention	The project will address sedimentation issues associated with the erosion of the island feature in the project area.
Practice Natural Resources Stewardship	
Ecosystem Restoration	The project replaces a gabion fish screen with a more effective screen that meets state and federal fish screen criteria to reduce entrainment losses of juvenile salmonids.

CDXI. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

The project supports the implementation of the fisheries agreement of the Lower Yuba River Accord. In doing so, the project promotes regional and inter-regional collaboration with a diverse group of interested parties and regulatory state and federal agencies to implement climate change adaptive management strategies supporting anadromous fisheries.

GHG Emissions Reduction

A comprehensive and exhaustive feasibility assessment has been underway for several years. An initial assessment was completed in 2009 and a subsequent feasibility assessment was finalized in 2013. Currently, YCWA has engaged consultants to do a comparative analysis of the two assessments. This exhaustive process has identified various project alternatives. Energy use and consumption comprise criteria associated with the analysis of the various alternatives.

CDXII. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Feasibility Assessments		2009 Preliminary Assessment Completed; 2013 Secondary Assessment Completed
Design	Design recommended in 2013 Feasibility Assessment		
Environmental Documentation (CEQA/NEPA)		2014	2015

Permitting	TBD		
Tribal Consultation (if not applicable, indicate by N/A)	N/A		
Construction/ Implementation	Pending funding		

CDXIII. Project Technical Feasibility

ffffff. List the water planning documents that specifically identify this project.	Lower Yuba River Accord
gggggg. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Yuba River Accord
hhhhhh. List technical reports and studies supporting the feasibility of this project.	Yuba River – South Canal Diversion Fish Screen Alternatives Feasibility-Level Design Report, December 2013 2009 Feasibility Study NOAA Fisheries (NMFS) Biological Opinions
If you are an Urban Water Supplier:	
106. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
107. Are you in compliance with AB1420?	See above
108. Do you comply with the water meter requirements (CWC Section 525)?	See above
If you are an Agricultural Water Supplier:	
47. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
48. Has GWMP been completed and submitted for the subject basin?	Yes

Agricultural Water Conservation Evaluation

YCWA-06

CDXIV. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDXV. General Project Information

Project Title	Agricultural Water Conservation Evaluation
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Various throughout the region
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Various
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Monitoring Best Management Practices

CDXVI. Project Description

This program of pilot projects would evaluate historic and existing irrigation practices within Yuba County to determine their effect on long-term water resources management, and identify opportunities and implement improved irrigation management. These opportunities may be achieved through structural means or by improved on-farm management of irrigation water. Some examples could include installation of local tailwater recovery systems, creation of on-farm storage ponds, or modification of irrigation methods.

CDXVII. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Water Use Efficiency/Water Conservation

Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

CDXVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1**: Ensure adequate and reliable water supply to meet the diverse needs of the region. • Determine what practices would best make use of limited water quantities within Yuba County, and implement and promote irrigation practices for the most efficient use of water by agricultural growers. • Monitor changes from improved practices for three full irrigation seasons.
Objectives Addressed by Project	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.8 Promote regional education and outreach regarding water supply issues and needs.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDXIX. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	By identifying opportunities to implement improved irrigation management.

CDXX. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency

Climate Change Adaptation

The Yuba County RWMG has identified agriculture water use as, perhaps, the most vulnerable beneficial uses to climate change. Through the development of pilot projects and monitoring, this project provides essential data towards the development of adaptation strategies to incentivize on-farm water conservation and irrigation efficiencies.

GHG Emissions Reduction

This project is currently conceptual and has yet to consider GHG mitigation and emissions reduction strategies.

CDXXI. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDXXII. Project Technical Feasibility

iiiiii. List the water planning documents that specifically identify this project.	
jjjjjj. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	YCWA Agricultural Water Management Plan, December 2012

kkkkkk. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
109. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
110. Are you in compliance with AB1420?	See above.
111. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
48. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
49. Has GWMP been completed and submitted for the subject basin?	Yes

Forecast-Coordinated Operations

YCWA-07

CDXXIII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDXXIV. General Project Information

Project Title	Forecast-Coordinated Operations
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$1,500,000
Can a detailed cost estimate be provided upon request?	No
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba and Butte
City/Community	Regionwide
Watershed/subwatershed	Yuba and Feather
Groundwater Basin	Yuba Groundwater Basin
Project Type	Monitoring Best Management Practices

CDXXV. Project Description

Coordinated flood control operation of Lake Oroville and New Bullards Bar Reservoir by preliminary release of stored water in years of high rain and snowfall. Use of new gaging stations, refined forecasting methods, and a Decision Support System will improve coordinated operations during flood years.

CDXXVI. Project Rationale/Issues Statement

This project addresses the following identified regional issues:

<u>Flood Management</u>

- Improve integrated flood management to ensure better emergency preparedness;
- Increase flood protection;
- Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits; and,

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies.

CDXXVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 5:** Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6**: Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	1.4 Promote disaster preparedness and conservation planning efforts; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability.
Performance Measures	

CDXXVIII. Resource Management Strategies

Improve Flood Management	
Flood Risk Management	Coordinated regional and inter-regional flood management to protect public safety and a reliable water supply

CDXXIX. Statewide Priorities

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

This project addresses the following climate change vulnerabilities:

- Increased storm intensity and severity puts communities, critical infrastructure, and protective levees at greater risk;
- Responses to increased flood risk could impact water delivery for regional demands and hinder YCWA's ability to transfer stored water.

By increasing system flexibility and resiliency through the use of new gaging stations, refined forecasting methods, and a Decision Support System, the project employs essential adaptation strategies to climate variability, where increased extreme weather events may place the region at greater risk of loss from flood.

GHG Emissions Reduction

The project does not directly mitigate for GHG emissions. However, with improved forecasting and coordinated communications in major flood events, this project could prevent damage to infrastructure and property avoiding construction costs and emissions associated with repairs and reconstruction from flood damage.

CDXXX. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDXXXI. Project Technical Feasibility

IIIIII. List the water planning documents that specifically identify this project.	

mmmmmm. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Draft Feather River Regional Flood Management Plan Central Valley Flood Protection Plan
nnnnnn. List technical reports and studies supporting the feasibility of this project.	Forecasted Coordinated Operations of Lake Oroville and New Bullards Bar Reservoir for Managing Major Flood Events
If you are an Urban Water Supplier:	
112. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
113. Are you in compliance with AB1420?	See above.
114. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
49. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
50. Has GWMP been completed and submitted for the subject basin?	Yes

Groundwater Monitoring Program

YCWA-08

CDXXXII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDXXXIII. General Project Information

Project Title	Groundwater Monitoring Program
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request (This amount should equal the total budget minus secured funding match)	$250,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	regionwide
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Monitoring

CDXXXIV. Project Description

This project would improve groundwater supply reliability by installing four to five single completion monitoring wells to augment the existing groundwater monitoring network.

CDXXXV. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Groundwater Management

- Promote integrated management of groundwater and surface water
- Educate the public to protect groundwater resources, especially from contamination and overuse
- Understand where groundwater and surface water are connected and where they have been disconnected
- Protect groundwater and groundwater-dependent ecosystems, especially to address the projected impacts of climate change;

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

CDXXXVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDXXXVII. Resource Management Strategies

Increase Water Supply

Conjunctive Management and Groundwater	Expanded groundwater monitoring in the region to more effectively manage conjunctive use and understand the impacts of climate change on groundwater

CDXXXVIII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

In light of the many climate change vulnerabilities associated with water supply, this project assists the region in adapting to the effects of climate change by expanding YCWA's groundwater monitoring program to ensure more informed conjunctive management decision-making.

GHG Emissions Reduction

This project is currently conceptual and has yet to determine GHG mitigation and emissions reduction strategies.

CDXXXIX. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDXL. Project Technical Feasibility

oooooo. List the water planning documents that specifically identify this project.	
pppppp. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County Water Agency Groundwater Management Plan

qqqqqq. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
115. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
116. Are you in compliance with AB1420?	See above.
117. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
50. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
51. Has GWMP been completed and submitted for the subject basin?	Yes

Long-term Water Supply Sustainability Study

YCWA-09

CDXLI. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDXLII. General Project Information

Project Title	Long-Term Water Supply Sustainability Study
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	regionwide
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin (valley floor) and Granitic Fractured Hard Rock (foothills)
Project Type	Planning Study/Assessment

CDXLIII. Project Description

This project would evaluate the long-term (e.g., a planning horizon past 2030) water demands and available water supplies within Yuba County. This planning study would evaluate the potential water demand of conceivable urban development in the valley floor and foothills from several alternatives. The sources of surface water and groundwater supplies, in addition to required capital costs to develop delivery, treatment, and monitoring programs, will be considered. The water demand from the alternatives will be compared with the 2030 water supplies. The difference of the post-2030 water demand and the 2030 water supplies will be used to size the water supply projects.

CDXLIV.Project Rationale/Issues Statement

This project would support the implementation of the Water Purchase Agreement and the Conjunctive Use Agreement of the Lower Yuba River Accord to support the water supply reliability and groundwater management/conjunctive use strategies of the Plan Area. The project study would consider the following regionally identified issues:

Water Storage

Develop new water storage or identify alternatives to new storage that would increase water supply as a result of projected future uncertainties;

Infrastructure

Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply;

Groundwater

Promote integrated management of groundwater and surface water;

Environmental Flows

At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems;

Land-use and Management

Address the connection between land-use planning and water

Water-use Efficiency/Water Conservation

Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors

CDXLV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions.
Objectives Addressed by Project	1.12 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary;

	1.13 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.7 Support regulatory compliance with current and future state and federal water supply standards 1.8 Promote regional education and outreach regarding water supply issues and needs; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 6.5 Promote education about climate change/variability and its impacts on water management and watershed health throughout the region.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDXLVI.Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	The study will evaluate the long term water demands in the region
Urban Water Use Efficiency	Same as above
Improve Operational Efficiency and Transfers	
Conveyance-- Delta	Various project alternatives will be explored in this long term comparison study to determine water demands and water supply project needs to 2030
Conveyance—Regional/Local	Various project alternatives will be explored in this long term comparison study to determine water demands and water supply project needs to 2030
System Reoperation	Various project alternatives will be explored in this long term comparison study to determine water demands and water supply project needs to 2030
Water Transfers	Various project alternatives will be explored in this long term comparison study to determine water demands and water supply project needs to 2030
Increase Water Supply	

Conjunctive Management and Groundwater	The sources of groundwater supply will be assessed and evaluated
Recycled Municipal Water	The potential water supplies will be assessed and evaluated
Surface Storage-- CALFED/State	The surface water supplies will be assessed and evaluated
Surface Storage-- Regional/Local	The surface water supplies will be assessed and evaluated

CDXLVII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management
- System interties

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water system energy efficiency

Climate Change Adaptation

This planning study establishes a time horizon that considers all water supply climate change vulnerabilities and establishes a framework to determine future water supply needs based on various scenarios. A range of operational alternatives will be explored that consider future uncertainties.

GHG Emissions Reduction

The study will incorporate a range of operational and project alternatives incorporating GHG mitigation and emissions reduction strategies.

CDXLVIII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDXLIX. Project Technical Feasibility

rrrrrr. List the water planning documents that specifically identify this project.	
ssssss. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Yuba River Accord YCWA Groundwater Management Plan
tttttt. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
118. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
119. Are you in compliance with AB1420?	See above.
120. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
51. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
52. Has GWMP been completed and submitted for the subject basin?	Yes

Narrows II Powerhouse Intake Extension

YCWA-10

CDL. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDLI. General Project Information

Project Title	Narrows II Powerhouse Intake Extension
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$5,000,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Located at the base of Englebright Dam
Latitude	39°14'07"
Longitude	121°16'23"
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
Watershed/subwatershed	Yuba/Lower Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Facility Construction Restoration

CDLII. Project Description

This project would reduce water temperatures downstream of Englebright Dam during certain times of the year to benefit the steelhead and fall-run Chinook salmon fisheries of the lower Yuba River. This would be accomplished by lowering the Narrows II Powerhouse intake in Englebright Reservoir to draw water from the cold water pool, thereby releasing cooler water downstream.

CDLIII. Project Rationale/Issues Statement

This project addresses the following identified regional issues:

Fisheries: Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible;

Environmental Flows: At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems;

Regulatory Compliance: Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration;

Climate Change: Respond to projected climate change impacts on watershed health and develop regional and inter-regional adaptive management strategies.

Additionally, this project addresses one of the region's identified conflicts—how and where fisheries should be recovered.

CDLIV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 2:** Protect, restore and enhance water quality in support of healthy watersheds by improving water temperature management suitable for lower Yuba River fisheries; **Goal 3:** Preserve and restore watershed health and promote environmental stewardship by providing access of fisheries to cold water pools; **Goal 6:** Address climate vulnerabilities by modifying a hydropower facility to support a fisheries migration corridor.
Objectives Addressed by Project	2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible; 3.7 Steward the region's ecological resources that directly provide opportunities for public access, recreation and education while maintaining the co-equal objectives of flood protection and preservation of agricultural lands; 6.3 Increase system flexibility and resiliency to adapt to climate variability.

What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDLV. Resource Management Strategies

Improve Operational Efficiency and Transfers	
System Reoperation	Re-operating a hydropower facility to manage for fisheries
Improve Water Quality	
Matching Water Quality to Use	The intake extension would allow for colder water to be returned to the river to ensure water quality suitable for anadromous fisheries
Practice Natural Resources Stewardship	
Water-dependent Recreation	By enhancing cold water fisheries, the facility reoperation would support water-dependent recreation

CDLVI. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

<u>Climate Change Adaptation</u>

This project addresses two identified climate vulnerabilities in the region:

- Environmental flows are likely to be affected by increasing temperatures, erratic rainfall, and earlier snowmelt;

- Increased water temperatures may significantly impact aquatic ecosystems

By extending the intake to draw colder water from Englebright reservoir, the project mitigates for projected increases in water temperature.

Additionally, the project meets statewide priorities for climate change adaptation by modifying an existing water management facility to address the impacts of anticipated climate variability.

GHG Emissions Reduction

The project does not directly mitigate for GHG emissions.

CDLVII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDLVIII. Project Technical Feasibility

Provide any related documents that describe and confirm the technical feasibility of your project.

uuuuuu. List the water planning documents that specifically identify this project.	Lower Yuba River Accord
vvvvvv. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Yuba River Accord
wwwwww. List technical reports and studies supporting the feasibility of this project.	Lower Yuba River Accord—several studies can be accessed at http://www.yubaaccordrmt.com/Yuba%20Accord%20Documents/Forms/AllItems.aspx
If you are an Urban Water Supplier:	

121. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
122. Are you in compliance with AB1420?	See above.
123. Do you comply with the water meter requirements (CWC Section 525)?	See above.
124. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	N/A
If you are an Agricultural Water Supplier:	
52. Have you completed and submitted an AWMP?	YES
If the project is related to groundwater:	
53. Has GWMP been completed and submitted for the subject basin?	YES

New Bullards Bar Reservoir Reoperation Manual

YCWA-11

CDLIX. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDLX. General Project Information

Project Title	New Bullards Bar Reservoir Reoperation Manual
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	New Bullards Bar Reservoir
Latitude	39.3921136
Longitude	-121.141623
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Dobbins
Watershed/subwatershed	Yuba/North Yuba
Groundwater Basin	Fractured Hard Rock
Project Type	Best Management Practices

CDLXI. Project Description

The purpose of this project is to update the U.S. Corps of Engineers' (USACE) Flood Operations Manual so that it more accurately represents whatever changes are needed in operation. This manual will be used as the guideline for operating New Bullards Bar Reservoir.

CDLXII. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Flood Management

- Improve integrated flood management to ensure better emergency preparedness;
- Increase flood protection and enhance floodplain functions and habitat;

Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits.

CDLXIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 5**: Protect public safety through emergency and drought preparedness and integrated flood management
Objectives Addressed by Project	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDLXIV. Resource Management Strategies

Improve Operational Efficiency and Transfers	
System Reoperation	An updated Flood Operations Manual will inform system reoperation during extreme storm events to ensure optimum efficiency and public safety.
Improve Flood Management	
Flood Risk Management	An updated Flood Operations Manual will contribute to sustainable, integrated flood management and will enhance public safety.

CDLXV. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Climate Change Adaptation

The project is in response to the following regionally identified climate vulnerabilities:

- Increased storm intensity and severity puts communities, critical infrastructure, and protective levees at greater risk;
- Responses to increased flood risk could impact water delivery for regional demands and hinder YCWA's ability to transfer stored water; and,

The project improves reservoir flood management operations to meet statewide priorities for improved integrated flood management, particularly under climate change projections.

GHG Emissions Reduction

This project does not directly address GHG mitigation or emissions reduction.

CDLXVI.Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDLXVII. Project Technical Feasibility

xxxxxx. List the water planning documents that specifically identify this project.	
yyyyyy. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	USACE Flood Operations Manual
zzzzzz. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
125. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).

126. Are you in compliance with AB1420?	See above.
127. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
53. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
54. Has GWMP been completed and submitted for the subject basin?	Yes

New Colgate Powerhouse Tailwater Depression

YCWA-12

CDLXVIII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDLXIX. General Project Information

Project Title	New Colgate Powerhouse Tailwater Depression
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$6,200,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Dobbins
Latitude	39° 22′ 04″ N,
Longitude	121° 12′ 25″ W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Dobbins
Watershed/subwatershed	Yuba/North Yuba
Groundwater Basin	Fractured Hard Rock
Project Type	Facility Construction

CDLXX. Project Description

The primary purpose of this project is to improve the flood protection capability of New Bullards Bar Reservoir. This is accomplished by the Tailwater Depression limit allowing the Colgate Powerhouse to operate for a longer period of time through a major flood event. This allows more water to be evacuated from New Bullards Bar Reservoir in advance of the peak flow and allows for peak flow releases out of New Bullards Bar Reservoir.

The New Colgate Powerhouse, constructed between 1968 and 1970, is located on the Yuba River at the upper end of Englebright Reservoir. The two generators are driven by vertical-shaft impulse (Pelton) turbines. The powerhouse is owned and operated by Yuba County Water Agency (YCWA) and provides power to the PG&E system.

High tailrace water elevations, due to high flows in the river during flooding, reduce the space in the turbine runner pits. If the tailwater rises to the point where foam interferes with the rotation of the runner, a backsplash effect occurs in the buckets, resulting in irregular runner rotation, excessive turbine vibration, and instability of power output. To continue operation of the unit under rising tailwater level conditions, the water flow discharged through the unit must be reduced to reduce the amount of foam generation. If the tailwater level continues to rise, the units eventually have to be shut down because they are not operable when submerged.

Technical Benefits of the Project

Installation of a tailwater depression system at New Colgate Powerhouse is technically and operationally feasible and the best means of avoiding operation curtailments resulting from high flows in the Yuba River.

Economic Benefits of the Project

Curtailments reduced the power generation by an average of 14,552 megawatt hours (MWh) for the 14 historical curtailment events, with a range of 1,826 MWh to 60,533 MWh.

Average annual flood inundation benefits were estimated to be $228,000 without considering growth and $879,999 with growth.

An estimated $237,000 in power generation benefits would be realized.

Equivalent annual economic cost over a 50-year period of analysis, including imputed interest at 6 percent during the construction period and operation and maintenance costs, was estimated to be $344,700.

The average annual operation and maintenance cost is estimated to be about $27,200. This includes about $17,800 for energy consumption and lesser amounts for materials and supplies. It has been assumed that the operating and maintenance labor will be provided by the New Colgate Powerhouse operating personnel during their regular work hours. Therefore, no additional labor cost is anticipated.

The project has a benefit-cost ratio of 1.35:1 without growth and 3.24:1 with growth.

Construction tasks requiring the shutdown of the turbines will be scheduled to minimize impacts on energy production. This will be in coordination with the California ISO and PG&E to avoid power losses.

CDLXXI. Project Rationale/Issues Statement

During the 31 years since full operation of New Colgate Powerhouse, there have been 14 occasions, ranging from 3 to 12 days, when flows in the Yuba River caused high tailwater conditions and required total or partial curtailment of generation. Curtailments occurred during a total of 91 days. Curtailments reduced the capacity to release water by an average of about 12,900 acre-feet during the 14 curtailment events. The amounts ranged from about 1,600 acre-feet during 3 days in 1974 to 54,000 acre- feet during 11 days in 1996-1997. This project addresses the following identified regional issues:

Infrastructure
Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply;

Flood Management

Improve integrated flood management to ensure better emergency preparedness;
Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies.

CDLXXII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 5**: Protect public safety through emergency and drought preparedness and integrated flood management **Goal 6** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 6.3 Increase system flexibility and resiliency to adapt to climate variability.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDLXXIII. Resource Management Strategies

Improve Operational Efficiency and Transfers

System Reoperation	Installation of a tailwater depression system at New Colgate Powerhouse reoperates the system to avoid against power generation curtailments.
Improve Flood Management	
Flood Risk Management	The project would avoid against interruptions in power generation as a result of high flows from extreme storm events.

CDLXXIV. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems

Climate Change Adaptation

The project is in response to the following regionally identified climate vulnerabilities:

- Increased storm intensity and severity puts communities, critical infrastructure, and protective levees at greater risk;

This project directly addresses this vulnerability by upgrading and reoperating this power generation infrastructural facility to adapt to extreme flood events.

GHG Emissions Reduction

The GHG considerations have yet to be determined since this project is in a conceptual stage.

CDLXXV. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDLXXVI. Project Technical Feasibility

aaaaaaa. List the water planning documents that specifically identify this project.	

bbbbbbb. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
ccccccc. List technical reports and studies supporting the feasibility of this project.	Report on Feasibility of Tailwater Depression at New Colgate Powerhouse, and Element of Yuba-Feather Supplemental Flood Control Project, October 2002 Initial Study and Proposed Mitigated Negative Declaration, Feasibility of Tailwater Depression at New Colgate Powerhouse, an Element of Yuba-Feather Supplemental Flood Control Project, Appendix NCP-B of Feasibility of Tailwater at New Colgate Powerhouse, September 2002 Basis of Design for Tailwater Depression at New Colgate Powerhouse, Yuba-Feather Supplemental Flood Control Project, July 2003 Specifications and Drawings for Tailwater Depression at New Colgate Powerhouse, Yuba-Feather Supplemental Flood Control Project, December 2004 Design Report for Tailwater Depression atNew Colgate Powerhouse, Yuba-Feather Supplemental Flood Control Project, December 2004
If you are an Urban Water Supplier:	
128. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
129. Are you in compliance with AB1420?	See above.
130. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
54. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
55. Has GWMP been completed and submitted for the subject basin?	Yes

Regional Feather River Diversion Feasibility Study

YCWA-13

CDLXXVII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDLXXVIII. General Project Information

Project Title	Regional Feather River Diversion Feasibility Study
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Approximate location- confluence of Yuba and Feather Rivers (actual project downstream of confluence
Latitude	39.138611° N
Longitude	121.605833° W
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Regional
Watershed/subwatershed	Yuba and Feather
Groundwater Basin	Yuba Groundwater Basin
Project Type	Study/Assessment

CDLXXIX. Project Description

The study will assess the feasibility of diverting Yuba River Development Project (FERC No. 2246) water downstream of the confluence with the Feather River, below sensitive fish habitat. A water treatment plant would be constructed to treat water for urban use. This new supply will reduce overdraft pressure on the limited groundwater resource and further the region's conjunctive use goals.

Approach

The Regional Feather River Diversion Feasibility Study may include the following components:

- Establish project objectives
- List project constraints
- Formulate alternatives
- Evaluate alternatives
- Determine impacts of alternatives
- Determine performance of alternatives
- Estimate alternative costs
- Establish alternative ranking criteria
- Recommend a preferred alternative, based on ranking and cost
- Determine cost of preferred alternative
- Recommend project funding sources

Select elements of the urban water supply diversion and auxiliary facilities that may be included are:

- Intake facility and pumping plant on the Feather River south of the Yuba River confluence
- Fish screens at intake
- Settling basins or other system for managing sediment
- Reservoir and water treatment plant for urban water supply
- Distribution system infrastructure, including canals, pipes, laterals and turnouts
- Facilities, as necessary, to link to or bypass existing infrastructure (e.g. pumps, siphons)
- Operation and maintenance plan
- Water rights or allocations and/or relationship with SWP project water

Any potentially significant environmental impacts must be identified and mitigated, as necessary. An evaluation of project impacts in the following areas will be conducted:

- Hydrology, water supply and power
- Water quality
- Fish
- Recreation
- Vegetation and wetland resources
- Wildlife
- Groundwater, geology, soils, and seismicity
- Land use
- Growth-related effects
- And, to a lesser extent, air quality, noise, public health and safety, visual resources, cultural resources.

CDLXXX. Project Rationale/Issues Statement

Recent urban development in the Yuba-Feather River region has resulted in increased demand for a high-quality water supply. Currently, after local irrigation diversion requirements are met, a portion of Yuba River Project water passes by a diversion located upstream of Daguerre Point Dam to satisfy minimum instream fish flow requirements in the lower Yuba River. This Yuba River Project water is not diverted for consumptive use and eventually leaves the region and flows to the ocean. This project will study the feasibility of diverting that water at a point below sensitive fish habitat, downstream of the confluence with the Feather River. The feasibility study will consider the following identified regional issues:

Water Storage
Develop new water storage or identify alternatives to new storage that would increase water supply as a result of projected future uncertainties;

Infrastructure
Develop new infrastructure as well as repair, replace and retrofit aging infrastructure to ensure adequate and reliable water supply;

Groundwater
Promote integrated management of groundwater and surface water

Land-use and water
Address the connection between land-use planning and water;

Climate Change
Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies.

CDLXXXI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	1.14 Improve water supply system capacity, flexibility and efficiency, including, but not limited to, optimizing existing water storage; upgrading and retrofitting aging infrastructure; and, developing new infrastructure, where necessary; 6.3 Increase system flexibility and resiliency to adapt to climate variability.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative	

measurement reflecting successful project outcomes.	

CDLXXXII. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance—Regional/Local	The feasibility study aims to enhance local and regional conveyance for increased water supply reliability
Increase Water Supply	
Conjunctive Management and Groundwater	The study aims to reduce overdraft pressure on the limited groundwater resource and further the region's conjunctive use goals
Surface Storage-- Regional/Local	The study will consider possible new regional/local surface storage facilities

CDLXXXIII. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Efficient groundwater basin management
- System interties

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Climate Change Adaptation

The feasibility study is in response to water supply reliability uncertainties and vulnerabilities under climate change projections. The study aims to determine the feasibility of developing new infrastructure that would modify the water supply delivery system to compensate for climate variability.

GHG Emissions Reduction

The feasibility study would explore a range of project alternatives that consider GHG mitigation and emissions reduction strategies.

CDLXXXIV. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDLXXXV. Project Technical Feasibility

dddddddd. List the water planning documents that specifically identify this project.	
eeeeeeee. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	YCWA Groundwater Management Plan Agricultural Water Management Plan Yuba County General Plan Feather River Regional Flood Management Plan
ffffffff. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
131. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
132. Are you in compliance with AB1420?	See above.
133. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
55. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
56. Has GWMP been completed and submitted for the subject basin?	Yes

Regional Flood Management Agency

YCWA-14

CDLXXXVI. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(503) 743-5703

CDLXXXVII. General Project Information

Project Title	Regional Flood Management Agency
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Region-wide
Latitude	N/A
Longitude	N/A
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Marysville
Watershed/subwatershed	Regionwide (Yuba, Bear, Feather)
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Monitoring

CDLXXXVIII. Project Description

After a devastating flood in 1997, Yuba County Water Agency initiated studies directed toward developing a high level of flood protection for Yuba County and the surrounding communities, which have about one hundred thousand residents and several billion dollars in property and infrastructure. A regional flood control agency can be created to address the Yuba County area's vulnerability to catastrophic flooding. Overall, the current system does not provide adequate flood protection.

Improved flood management and flood warning is essential for the health, safety, and economic stability of communities in the vicinity of the Yuba and Feather Rivers. One cost effective program currently being implement is the Forecast-Coordinated Operations of Lake Oroville and New Bullards Bar Reservoir (F-CO). Through enhanced communication between local, state, and federal agencies, improved data gathering and exchange, and utilization of the most recent advancements to weather and river forecasting, the F-CO will help minimize the risk of exceeding river channel capacity and increase the warning times to the communities along the Yuba and Feather Rivers and downstream.

In response to flooding risk in Yuba County, the Yuba County Water Agency and other Yuba County flood control agencies are considering the creation of the Yuba County Flood Control Agency (YCFCA) through a Joint Exercise of Powers Agreement to the region increased flood protection along the Feather and Yuba Rivers.

The YCFCA's mission would be to provide the region with at least a 100-year level of flood protection as quickly as possible while seeking a 200-year or greater level of protection over time. With state legislative authority, YCFCA could authorize financing of flood control projects and could direct flood control responsibilities in ways that would provide optimum protection to the natural environment.

CDLXXXIX. Project Rationale/Issues Statement

This project addresses the issue of Flood Management by providing the region with at least a 100-year level of flood protection as quickly as possible while seeking a 200-year or greater level of protection over time. With state legislative authority, the proposed YCFCA could authorize financing of flood control projects and could direct flood control responsibilities in ways that provide optimum protection to the natural environment. In summary and more specifically, the project addresses the following identified regional issues:

Flood Management

- Improve integrated flood management to ensure better emergency preparedness;
- Increase flood protection and enhance floodplain functions and habitat;
- Create multi-stakeholder collaboration for flood management to achieve multiple economic, public safety, and ecological benefits; and,

Regulatory Compliance

Ensure a regulatory framework allowing for local and regional authority to respond to water and watershed management.

CDXC. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 5**: Protect public safety through emergency and drought preparedness and integrated flood management

Objectives Addressed by Project	1.4 Promote disaster preparedness and conservation planning efforts; 5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 5.2 Support regional and inter-regional collaboration to improve drought and emergency preparedness. The objective of this project is to create a regional agency responsible for flood management with the responsibility to reduce flood risk, thereby minimizing the impacts of floods on human safety, health, and welfare, and, consistent with these flood risk reduction goals, to preserve and enhance the environmental and aesthetic values that floodways and floodplains contribute to the quality of life in Yuba County.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

CDXCI. Resource Management Strategies

Improve Flood Management	
Flood Risk Management	The proposed YCFCA's mission would be to provide the region with at least a 100-year level of flood protection as quickly as possible while seeking a 200-year or greater level of protection over time. With state legislative authority, the proposed YCFCA could authorize financing of flood control projects and could direct flood control responsibilities in ways that provide optimum protection to the natural environment.

CDXCII. Statewide Priorities

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection

- More sustainable flood and water management systems

Climate Change Adaptation

The project is in response to the following regionally identified climate vulnerabilities:

- Increased storm intensity and severity puts communities, critical infrastructure, and protective levees at greater risk;
- Responses to increased flood risk could impact water delivery for regional demands and hinder YCWA's ability to transfer stored water; and,

The project advocates for greater regional and inter-regional coordination to meet statewide priorities for improved integrated flood management, particularly under climate change projections.

GHG Emissions Reduction

The project does not directly mitigate for GHG emissions. However, with improved coordinated flood management, agencies could increase their capacity to more effectively develop regional projects that address GHG emissions reductions as well as climate change vulnerabilities.

CDXCIII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

CDXCIV. Project Technical Feasibility

ggggggg. List the water planning documents that specifically identify this project.	
hhhhhhh. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Draft Feather River Regional Flood Management Plan Central Valley Flood Protection Plan
iiiiiii. List technical reports and studies supporting the feasibility of this project.	Forecasted Coordinated Operations of Lake Oroville and New Bullards Bar Reservoir for Managing Major Flood Events
If you are an Urban Water Supplier:	
134. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
135. Are you in compliance with AB1420?	See above.
136. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	

56. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
57. Has GWMP been completed and submitted for the subject basin?	Yes

Subsidence Monitoring

YCWA-15

CDXCV. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

CDXCVI. General Project Information

Project Title	Subsidence Monitoring
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	No
Project Location:	Various- regional
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Regional
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Monitoring

CDXCVII. Project Description

A passive land subsidence monitoring program would be developed as an additional component of the existing regional groundwater monitoring program, which monitors groundwater levels, quality, and groundwater/surface water interaction, in accord with the Yuba County Water Agency (YCWA) Groundwater Management Plan adopted by the YCWA Board of Directors in March 2005. To date, no land subsidence monitoring activity has occurred in Yuba County. The Department of Water Resources, Geodetic Branch, and YCWA is in the process of developing a preliminary land subsidence monument network by correlating National Oceanic and Atmospheric Administration's National Geodetic Survey (NGS) monuments with topographic data to determine the proposed locations for new monuments.

DWR, Geodetic Branch, is in the process of coordinating the Sacramento Valley GPS Height: Modernization project that includes the installation of new monuments and related satellite observations to occur beginning in Fall 2007, with site observations in Yuba County to occur in Spring 2008. Other participating counties include Sacramento, Yolo, Colusa, Sutter, Butte, Glenn, and Tehama Counties. The network has not been finalized.

CDXCVIII. Project Rationale/Issues Statement

This project addresses the following identified regional issue:

Groundwater

- Promote integrated management of groundwater and surface water
- Educate the public to protect groundwater resources, especially from contamination and overuse
- Understand where groundwater and surface water are connected and where they have been disconnected
- Protect groundwater and groundwater-dependent ecosystems, especially to address the projected impacts of climate change

CDXCIX. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions
Objectives Addressed by Project	In accord with the basin management objectives (BMO's) identified in the YCWA Groundwater Management Plan, the objective to establish a passive land subsidence monitoring program is to determine whether groundwater management activities (and pumping) cause negative inelastic impacts on the groundwater basin or to local infrastructure. The project specifically addresses the following identified regional objectives: 1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.6 Preserve water supplies that support recreational opportunities and agricultural uses; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health.

What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

D. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	establish a passive land subsidence monitoring program to determine whether groundwater management activities (and pumping) cause negative inelastic impacts on the groundwater basin or to local infrastructure

DI. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources

Climate Change Adaptation

This project addresses several identified climate change vulnerabilities in the area of water supply as enumerated in the climate change section of the IRWMP. By improving data sources through monitoring, the project will inform future adaptation strategies to ensure a sustainable groundwater management program.

GHG Emissions Reduction

This project is currently conceptual and has yet to consider GHG mitigation and/or emissions reduction strategies.

DII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

DIII. Project Technical Feasibility

jjjjjjj. List the water planning documents that specifically identify this project.	
kkkkkkk. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County Water Agency Groundwater Management Plan
lllllll. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
137. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
138. Are you in compliance with AB1420?	See above.
139. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
57. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
58. Has GWMP been completed and submitted for the subject basin?	Yes

Surface Water Measurement Program

YCWA-16

DIV. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

DV. General Project Information

Project Title	Surface Water Measurement Program
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request (This amount should equal the total budget minus secured funding match)	$500,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Various- regionwide
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Various- regional
Watershed/subwatershed	Yuba
Groundwater Basin	Yuba Groundwater Basin
Project Type	Monitoring Best Management Practices

DVI. Project Description

The California Bay-Delta Program has identified the need for improved water delivery measurement. The August 2000 CALFED Record of Decision called for legislation requiring the appropriate measurement of all water uses in California. One of the first steps towards that goal was the formation of a panel of independent experts to help define appropriate agricultural water use measurement. The

findings of the panel's report were presented in the Independent Panel on Appropriate Measurement of Agricultural Water Use–Final Report issued in September 2003.

Yuba County Water Agency (YCWA) is looking to implement a surface water measurement program that includes the installation of weirs, gages, and SCADA system to measure surface water flows diverted from the north and south diversions on the Yuba River. This project would include:

- The development of a measurement plan to guide the development of the measurement program;
- Identification of the hardware, software, and staffing requirements to implement the program;
- Installation and calibration of the weirs or flumes and installation of the SCADA systems.

DVII. Project Rationale/Issues Statement

Improved surface water measurement and analysis will support transfers related to the Lower Yuba River Accord, and also water deliveries to member units via contracted water allocations and/or water rights held by the member units. In addition, the automation through SCADA will reduce operating costs for YCWA and Member Units. This project is the first step in preparing a surface water measurement program that will enable the accumulation and dissemination of information concerning the patterns of water use in the region and will enable managers to improve their water usage.

The project specifically addresses the following identified regional issues:

Water Use Efficiency/Water Conservation
Promote and implement policies and practices to increase water use efficiency *and* water conservation in municipal and agricultural sectors;

Regulatory Compliance
Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration;

Climate Change
Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies.

DVIII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions.
Objectives Addressed by Project	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation

	efficiencies, municipal water conservation, water recycling and reuse; 1.6 Preserve water supplies that support recreational opportunities and agricultural uses; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 1.8 Promote regional education and outreach regarding water supply issues and needs; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 6.5 Promote education about climate change/variability and its impacts on water management and watershed health throughout the region; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

DIX. Resource Management Strategies

Reduce Water Demand	
Agricultural Water Use Efficiency	Improved estimates of the degree of water reuse in member units; Improved water measurement and reporting capabilities; Improved ability to manage water measurement data; Identifying opportunities to improve water use efficiency

Urban Water Use Efficiency	See above
Improve Operational Efficiency and Transfers	
Conveyance-- Delta	The development of a measurement plan to guide the development of the measurement program;
Conveyance—Regional/Local	Improved computation of regional surface water usage
Water Transfers	Development of program supporting water transfers

DX. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling

Climate Change Response Actions

- Adaptation to Climate Change: Use and reuse water more efficiently
- Reduce Energy Consumption: Water use efficiency

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

Climate Change Adaptation

This project takes a regional approach to addressing a full range of identified water supply vulnerabilities. The project would establish a program to increase best management practices, monitoring and data collection to use water more efficiently across the region. The project would, therefore, improve water management system efficiency and ensure greater resiliency amidst climate variability and uncertainties associated with climate change.

GHG Emissions Reduction

This project is currently conceptual and has yet to consider GHG mitigation and emissions reduction strategies. However, this regional water conservation program would reduce energy consumption through increased water use efficiency over time.

DXI. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

DXII. Project Technical Feasibility

mmmmmmm. List the water planning documents that specifically identify this project.	
nnnnnnn. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Yuba County Agricultural Water Management Plan, December 2012
oooooooo. List technical reports and studies supporting the feasibility of this project.	Independent Panel on Agricultural Water Use–Final Report issued in September 2003
If you are an Urban Water Supplier:	
140. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
141. Are you in compliance with AB1420?	See above.
142. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
58. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
59. Has GWMP been completed and submitted for the subject basin?	Yes

Lower Yuba River Accord Implementation

YCWA-17

DXIII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

DXIV. General Project Information

Project Title	Yuba Accord Implementation
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$5,000,000
Can a detailed cost estimate be provided upon request?	No
Project Location:	Lower Yuba River- coordinates at Yuba River near Smartsville
Latitude	39.235172
Longitude	-121.274124
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Various- from Englebright Dam to Marysville
Watershed/subwatershed	Yuba/lower Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Planning Monitoring Best Management Practices

DXV. Project Description

The purpose of the Lower Yuba River Accord (LYRA) is to resolve instream flow issues associated with the operation of the Yuba River Development Project (FERC No. 2246) in a way that enhances lower Yuba River fisheries and local water supply reliability. This project includes implementation of the Water Purchase Agreement, and Conjunctive Use Agreement of the Lower Yuba River Accord.

DXVI. Project Rationale/Issues Statement

This project would support the implementation of the Water Purchase Agreement and the Conjunctive Use Agreement of the Lower Yuba River Accord to support the water supply reliability and groundwater management/conjunctive use strategies of the Plan Area. The project specifically addresses the following identified regional issues:

Environmental Flows

At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems;

Fisheries

Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible;

Groundwater

Promote integrated management of groundwater and surface water

Regulatory Compliance

- Ensure a regulatory framework allowing for local and regional authority to respond to water and watershed management
- Promote consistent enforcement of environmental protections to achieve the recovery of economically and culturally important species

Climate Change

Respond to projected climate change impacts on water supply reliability, water quality, public safety and watershed health and develop regional and inter-regional adaptive management strategies

Additionally, this project fosters regional and inter-regional collaboration and coordination with regulatory agencies to proactively respond to two identified regional conflicts—regulatory compliance and fisheries.

DXVII. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region; **Goal 2:** Protect, restore and enhance water quality for water users and in support of healthy watersheds; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions.

Objectives Addressed by Project	1.2 Promote water conservation and water use efficiency by instituting various techniques including, but not limited to, groundwater recharge, conjunctive management, irrigation efficiencies, municipal water conservation, water recycling and reuse; 1.3 Protect and restore water supplies that support watershed health; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 2.5 Maintain and improve water quality required to restore and protect freshwater ecosystems, fisheries and groundwater-dependent habitat; 2.6 Support regulatory compliance with current and future state and federal water quality standards; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

DXVIII. Resource Management Strategies

Improve Operational Efficiency and Transfers	
Conveyance-- Delta	LYRA supports water transfers south of Delta
Conveyance—Regional/Local	Both agreements support conveyance to local and regional water end users
System Reoperation	The purpose of the Lower Yuba River Accord (LYRA) is to resolve instream flow issues associated with the operation of the Yuba River Development Project (FERC No. 2246)
Water Transfers	LYRA supports water transfers outside of the region
Increase Water Supply	
Conjunctive Management and Groundwater	The Conjunctive Use Agreement for the LYRA supports integrated management of groundwater and surface water in the region
Improve Water Quality	
Pollution Prevention	The LYRA Water Purchase Agreement employs this strategy by mitigating for water quality constituents (i.e., temperature) that threaten beneficial uses of surface waters such as domestic, riparian, and aquatic habitats

DXIX. Statewide Priorities

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management
- System interties

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Climate Change Adaptation

The project is subject to many of the water supply climate change vulnerabilities identified by the RWMG, including:

- Reduced water supply reliability;
- Environmental flows are likely to be affected by increasing temperatures, erratic rainfall, and earlier snowmelt;
- Declining snowpack increases the risk of supply uncertainty;
- Ability to deliver water transfers may be jeopardized;
- Out-of-region diversions may decrease;
- State water policies and out-of-region demands (e.g., Sacramento-San Joaquin Delta) could affect water supply management as much as the direct effects of climate change;
- Climate change-related surface water decreases could increase future groundwater demands and out-of-area transfer demands.

While climate change may affect LYRA implementation in the future, the Yuba Accord has expanded conjunctive management in the region, enhanced anadromous fish migration corridors and has promoted regional and inter-regional collaboration, establishing mechanisms to devise and implement climate change adaptive management strategies.

GHG Emissions Reduction

GHG mitigation and emissions reductions strategies have yet to be considered for this project.

DXX. Project Status and Schedule

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning	Completed 2007	Full implementation began in 2008	pursuant agreements in the LYRA
Design	Completed 2007	Full implementation began in 2008	
Environmental Documentation (CEQA/NEPA)	EIR/EIS completed 2007		
Permitting	Several permits procured pursuant LYRA		
Tribal Consultation (if not applicable, indicate by N/A)	N/A	N/A	N/A
Construction/ Implementation	Ongoing Implementation pursuant agreements in the LYRA	Ongoing Implementation pursuant agreements in the LYRA	pursuant agreements in the LYRA

DXXI. Project Technical Feasibility

ppppppp. List the water planning documents that specifically identify this project.	Lower Yuba River Accord
qqqqqqq. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	Lower Yuba River Accord YCWA Groundwater Management Plan
rrrrrrr. List technical reports and studies supporting the feasibility of this project.	Many technical reports and studies related to the Lower Yuba River Accord can be found at: http://www.yubaaccordrmt.com
If you are an Urban Water Supplier:	
143. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
144. Are you in compliance with AB1420?	See above.
145. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
59. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	

60. Has GWMP been completed and submitted for the subject basin?	Yes

Lower Yuba River Accord Implementation- Fisheries Actions

YCWA-18

DXXII. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

DXXIII. General Project Information

Project Title	Lower Yuba River Accord Implementation – Fishery Actions
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	TBD
Can a detailed cost estimate be provided upon request?	No
Project Location:	Approximate-- Yuba River near Smartsville
Latitude	39.235172
Longitude	-121.274124
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
Watershed/subwatershed	Yuba/lower Yuba River
Groundwater Basin	Yuba Groundwater Basin
Project Type	Restoration Study/Assessment Monitoring Best Management Practices Pilot/Demonstration Program

DXXIV. Project Description

The instream flow requirements of the Fisheries Agreement for the lower Yuba River will be based on a new water year index specific to the Yuba Accord and the Fisheries Agreement. Six flow schedules, plus Conference Year rules for 1-in-100 critically dry years, were developed to ensure appropriate river flows for the various hydrologic year classes.

Yuba County Water Agency (YCWA) also will provide an additional 30,000 acre-feet of water during Schedule 6 years by operating a groundwater substitution program through the Conjunctive Use Agreements. Through the Yuba Accord, YCWA will provide payments to participating local irrigation districts/mutual water companies to offset standby and operating costs associated with making groundwater available in the driest year classes. This operation will be consistent with YCWA's Groundwater Management Plan and within the safe yield of the groundwater aquifer.

The Fisheries Agreement establishes a River Management Team (RMT) that will include representatives of the participants in the Fisheries Agreement and the parties to the Transfer Agreement. The RMT will provide YCWA with input on lower Yuba River operations, flow release scheduling, expenditures for fisheries studies, and other related activities.

The RMT will fund a program of monitoring and evaluation studies regarding specific elements of the Fisheries Agreement. These efforts will include core studies to assess conditions of individual fish, fish populations, and the fish community. Additional studies will address specific objectives based on priority stressors for anadromous salmonids in the lower Yuba River. Finally, specific restoration pilot projects will be funded by the RMT. Technical working groups from the RMT will develop and oversee these studies and restoration actions.

DXXV. Project Rationale/Issues Statement

This project addresses the following identified regional issues:

Fisheries: Recover endangered and threatened fish species, particularly anadromous fish, and restore access to historic habitat wherever feasible;

Environmental Flows: At minimum, maintain quantity, timing, and quality of stream-flows required to restore and protect freshwater ecosystems;

Regulatory Compliance: Mitigate for the impacts of regulatory compliance on water management decision-making and processes, including increased costs and decreased opportunities for collaboration;

Climate Change: Respond to projected climate change impacts on watershed health and develop regional and inter-regional adaptive management strategies.

Additionally, this project addresses one of the region's identified conflicts—how and where fisheries should be recovered.

DXXVI. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 1:** Ensure adequate and reliable water supply that meets the diverse needs of the region;

	Goal 3: Preserve and restore watershed health and promote environmental stewardship; **Goal 6:** Address climate vulnerabilities and reduce greenhouse gas emissions.
Objectives Addressed by Project	1.3 Protect and restore water supplies that support watershed health; 1.7 Support regulatory compliance with current and future state and federal water supply standards; 1.8 Promote regional education and outreach regarding water supply issues and needs; 3.3 Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible; 3.7 Steward the region's ecological resources that directly provide opportunities for public access, recreation and education while maintaining the co-equal objectives of flood protection and preservation of agricultural lands; 6.2 Improve data, modeling and technical analyses to better understand the impacts of climate change on regional and inter-regional water supply and watershed health; 6.3 Increase system flexibility and resiliency to adapt to climate variability; 6.5 Promote education about climate change/variability and its impacts on water management and watershed health throughout the region; 6.6 Promote regional and inter-regional collaboration to implement climate change adaptive management strategies.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

DXXVII. Resource Management Strategies

Increase Water Supply	
Conjunctive Management and Groundwater	Yuba County Water Agency (YCWA) will provide an additional 30,000 acre-feet of water during Schedule 6 years by operating a groundwater substitution program through the Conjunctive Use Agreements and in compliance with YCWA's Groundwater Management Plan.
Practice Natural Resources Stewardship	

Economic Incentives (Loans, grants, and water pricing)	Through the Yuba Accord, YCWA will provide payments to participating local irrigation districts/mutual water companies to offset standby and operating costs associated with making groundwater available in the driest year classes.
Ecosystem Restoration	Restoration pilot projects will be implemented based on the outcomes of technical working groups' studies and recommendations.
Watershed Management	The project will fund monitoring and evaluation studies that will address specific objectives based on priority stressors for anadromous salmonids in the lower Yuba River and implement actions accordingly (see above).

DXXVIII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Water management system modifications that address anticipated climate
- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

<u>Climate Change Adaptation</u>

The project assists the region in adapting to the effects of climate change by responding to the following identified climate vulnerabilities:

- Environmental flows are likely to be affected by increasing temperatures, erratic rainfall, and earlier snowmelt;

- Decreases in surface flows may threaten fish and other aquatic life;
- Water demands may jeopardize mandated environmental flows for aquatic species;
- State water policies and out-of-region demands (e.g., Sacramento-San Joaquin Delta) could affect water supply management as much as the direct effects of climate change.

The project responds to these climate vulnerabilities by employing the following adaptation strategies:

- Implementing Basin Management Objectives as outlined in YCWA's Groundwater Management Plan;
- Conducting conjunctive use of surface and groundwater, water transfers (artificial recharge), wastewater recycling, and irrigation water re-use;
- Groundwater monitoring is currently being conducted by YCWA under its groundwater monitoring plan;
- YCWA's Groundwater Adaptive Management Tool (GAMT) helps model groundwater response and recovery throughout the Yuba basin;
- Conjunctive use of surface and groundwater, water transfers (artificial recharge), wastewater recycling, and irrigation water re-use;
- YCWA continues to seek funding for addressing groundwater data gaps;

Ultimately, this project aims to implement the Yuba Accord as a central adaptation strategy to help maintain in-stream flow requirements.

GHG Emissions Reduction

This project does not directly mitigate for GHG emissions or consider GHG reduction.

DXXIX. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

DXXX. Project Technical Feasibility

Provide any related documents that describe and confirm the technical feasibility of your project.

sssssss. List the water planning documents that specifically identify this project.	Yuba Accord
ttttttt. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans,	Yuba Accord

Habitat Conservation Plans, etc.)	
uuuuuuu. List technical reports and studies supporting the feasibility of this project.	Yuba Accord several studies and reports—can be accessed at http://www.yubaaccordrmt.com/Yuba%20Accord%20Documents/Forms/AllItems.aspx
If you are an Urban Water Supplier:	
146. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
147. Are you in compliance with AB1420?	See above.
148. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
60. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
61. Has GWMP been completed and submitted for the subject basin?	Yes

Yuba County Levee Project

YCWA-19

DXXXI. Project Sponsor Contact Information

Lead Agency/Organization	Yuba County Water Agency
Name of Primary Contact(s)	Curt Aikens
Mailing Address	Yuba County Water Agency 1220 F Street Marysville, CA 95901
Phone	(530) 743-5703

DXXXII. General Project Information

Project Title	Yuba County Levee Project
Project Total Budget	TBD
Project Funding Match	TBD
Project Funding Request	$750,000,000
Can a detailed cost estimate be provided upon request?	No
Could you provide a map of the project location including boundaries upon request?	Yes
County	Yuba
City/Community	Marysville
Watershed/subwatershed	Yuba and Feather
Groundwater Basin	Yuba Groundwater Basin
Project Type	Restoration Study/Assessment Monitoring

DXXXIII. Project Description

This project includes analysis and improvement of 75 miles of levee within Reclamation District (RD) 10, RD 784, RD 817, RD 2103, and the Marysville Levee District with the near-term goal of 200+-year level of protection for urbanized areas and a 100-year level of protection for rural areas. There are ongoing efforts for levee improvements in the RD 784 and RD 2103 areas, along with a Corps of Engineers' Yuba Basin Feasibility Study that covers RD 784 and Marysville. Costs for these improvements will be estimated from ongoing efforts.

DXXXIV. Project Rationale/Issues Statement

The project addresses the following identified regional issues:

Flood Management

- Improve integrated flood management to ensure better emergency preparedness;

Increase flood protection and enhance floodplain functions and habitat;

DXXXV. Goals/Objectives/Performance Metrics

Goals Addressed by the Project	**Goal 5**: Protect public safety through emergency and drought preparedness and integrated flood management; **Goal 7:** Promote equitable distribution of resources to disadvantaged communities across the region.
Objectives Addressed by Project	5.1 Improve integrated flood management to ensure emergency preparedness, increase flood protection and enhance regional and inter-regional collaboration; 5.2Support regional and inter-regional collaboration to improve drought and emergency preparedness; 7.1 Support DAC project implementation activities by providing ongoing outreach, proposal and funding development assistance and training.
What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

DXXXVI. Resource Management Strategies

Improve Flood Management	
Flood Risk Management	This project will help Yuba County with its near-term goal of 200-year level of protection for urbanized areas and a 100-year level of protection for rural areas.

DXXXVII. Statewide Priorities

Climate Change Response Actions

- Adaptation to Climate Change: Water management system modifications that address anticipated climate

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems
- LID techniques that store and infiltrate runoff while protecting groundwater

Ensure Equitable Distribution of Benefits

- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations

Climate Change Adaptation

The project is in response to the following regionally identified climate vulnerabilities:

- Increased storm intensity and severity puts communities, critical infrastructure, and protective levees at greater risk;
- Responses to increased flood risk could impact water delivery for regional demands and hinder YCWA's ability to transfer stored water; and,

The project advocates for greater regional coordination to meet statewide priorities for improved integrated flood management, particularly under climate change projections.

GHG Emissions Reduction

Since this project is conceptual, GHG reduction considerations have yet to be determined.

DXXXVIII. Project Status and Schedule

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES

DXXXIX. Project Technical Feasibility

vvvvvvv. List the water planning documents that specifically identify this project.	
wwwwwww. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs,	Draft Feather River Regional Flood Management Plan Central Valley Flood Protection Plan

Water Master Plans, Habitat Conservation Plans, etc.)	
xxxxxxx. List technical reports and studies supporting the feasibility of this project.	Corps of Engineers' Yuba Basin Feasibility Study
If you are an Urban Water Supplier:	
149. Have you completed an Urban Water Management Plan and submitted to DWR?	Yuba County Water Agency (YCWA) does not supply water for direct urban use and is not subject to the Urban Water Management Plan Act (UWMPA).
150. Are you in compliance with AB1420?	See above.
151. Do you comply with the water meter requirements (CWC Section 525)?	See above.
If you are an Agricultural Water Supplier:	
61. Have you completed and submitted an AWMP?	Yes
If the project is related to groundwater:	
62. Has GWMP been completed and submitted for the subject basin?	Yes

Yuba County IRWMP | 2015 UPDATE

APPENDIX 14-2
Project Solicitation Form

Yuba County IRWMP Update

Project Solicitation Form

The Yuba County IRWM region is accepting projects to be considered for inclusion in the IRWMP Update. In order for your project(s) to be considered for inclusion, you must complete this Project Solicitation Form. If you have multiple projects, you must complete a separate form for each project. If you have a project or projects in the original plan, you still must fill out this form. It is essential for the RWMG to have consistent and current information for all projects, both new and existing. This will prove of particular importance when the RWMG goes through the project review and selection processes.

Completed Project Solicitation Forms should be sent via email to Tania Carlone at tlcarlone@gmail.com.

I. Project Sponsor Contact Information

Lead Agency/Organization	
Name of Primary Contact(s)	
Mailing Address	
Email Address	
Phone (###)###-####	
Project Partners/Collaborators	

II. General Project Information

Project Title	
Project Total Budget	
Project Funding Match with sources of non-State of California match funding indicated (minimum 25% match requirement unless project meets critical water needs of a disadvantaged community then match may be waived)	
Project Funding Request (This amount should equal the total budget minus secured funding match)	
Can a detailed cost estimate be provided upon request?	
Project Location:	

Latitude	
Longitude	
Could you provide a map of the project location including boundaries upon request?	
Project Location Description:	
County	
City/Community	
Watershed/subwatershed	
Groundwater Basin	
Project Type (highlight in gray all the apply)	Planning Facility Construction Restoration Study/Assessment Monitoring Best Management Practices Acquisitions Demonstration/Pilot Project

III. Project Description

Write a narrative briefly describing the project (maximum of 300 words). Please be aware that this description will be the basis for what would ultimately be published in the Yuba County IRWM Plan.

IV. Project Rationale/Issues Statement

Briefly describe (maximum of 200 words) how the project addresses one or more of the region's identified issues. **See attached Draft Issues List for your reference.**

V. Goals/Objectives/Performance Metrics

Identify the goals and objectives addressed by the project and provide a one to two sentence explanation of how the project contributes to the attainment of the goals and objectives. Additionally, identify the performance metrics that will be used to measure project success. **See attached Draft Goals-Objectives and Performance Metrics document for your reference.**

Goals Addressed by the Project	
Objectives Addressed by Project	

What performance metrics will be used to demonstrate that objectives are being met? Wherever possible, provide a quantitative measurement reflecting successful project outcomes.	

VI. Resource Management Strategies

Based on your understanding of Resource Management Strategies (RMS) in the table below, indicate which RMS are employed by the project by providing a one to two sentence explanation of how the project incorporates the strategies. If you are uncertain of whether a particular RMS applies, let us know and we will work with you to determine the applicability of the strategy.

Reduce Water Demand	
Agricultural Water Use Efficiency	
Urban Water Use Efficiency	
Improve Operational Efficiency and Transfers	
Conveyance-- Delta	
Conveyance—Regional/Local	
System Reoperation	
Water Transfers	
Increase Water Supply	
Conjunctive Management and Groundwater	
Desalination	
Precipitation Enhancement	
Recycled Municipal Water	
Surface Storage-- CALFED	
Surface Storage-- Regional/Local	
Improve Water Quality	
Drinking Water Treatment and Distribution	
Groundwater and Aquifer Remediation	
Matching Water Quality to Use	
Pollution Prevention	
Salt and Salinity Management	
Urban Runoff Management	
Practice Natural Resources Stewardship	
Agricultural Lands Stewardship	

Economic Incentives (Loans, grants, and water pricing)	
Ecosystem Restoration	
Forest Management	
Land Use Planning and Management	
Recharge Areas Protection	
Water-dependent Recreation	
Watershed Management	
Improve Flood Management	
Flood Risk Management	

VII. Statewide Priorities

Indicate the statewide priorities that the project addresses by highlighting in gray all those bulleted items that apply. Ultimately, you will be required to demonstrate how your project concretely addresses these priorities. Therefore, please carefully select priorities where you have relative certainty of their application.

Drought Preparedness

- Promote water conservation, conjunctive use, reuse and recycling
- Improve landscape and agricultural irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management
- System interties

Use and Reuse Water More Efficiently

- Increase urban and agricultural water use efficiency measures such as conservation and recycling
- Capture, store, treat, and use urban stormwater runoff (such as percolation to usable aquifers, underground storage beneath parks, small surface basins, domestic stormwater capture systems, or the creation of catch basins or sumps downhill of development
- Incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff

Climate Change Response Actions

- Adaptation to Climate Change: Advance and expand conjunctive management of multiple water supply sources
- Adaptation to Climate Change: Use and reuse water more efficiently
- Adaptation to Climate Change: Water management system modifications that address anticipated climate

- Adaptation to Climate Change: Establish migration corridors, re-establish river-floodplain, hydrologic continuity, re-introduce anadromous fish populations to upper watersheds, enhance and protect upper watershed forests and meadow systems
- Reduction of Greenhouse Gas (GHG) Emissions: Reduce energy consumption of water systems and uses
- Reduction of GHG Emissions: Use cleaner energy sources to move and treat water
- Reduce Energy Consumption: Water use efficiency
- Reduce Energy Consumption: Water recycling
- Reduce Energy Consumption: Water system energy efficiency

Expand Environmental Stewardship

- Expand environmental stewardship to protect and enhance the environment by improving watershed, floodplain, and instream functions and to sustain water and flood management ecosystems

Practice Integrated Flood Management

- Better emergency preparedness and response
- Improved flood protection
- More sustainable flood and water management systems
- Enhanced floodplain ecosystems
- LID techniques that store and infiltrate runoff while protecting groundwater

Protect Surface and Groundwater Quality

- Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses
- Salt/nutrient management planning as a component of an IRWM Plan

Improve Tribal Water and Natural Resources

- Improve Tribal Water and Natural Resources and include the development of tribal consultation, collaboration, and access to funding for water programs

Ensure Equitable Distribution of Benefits

- Increase the participation of small and disadvantaged communities in the IRWM process
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations
- Contain projects that address safe drinking water and wastewater treatment needs of DACs
- Address critical water supply or water quality needs of California Native American tribes within the region

Climate Change Adaptation (maximum 200 words)

Briefly describe how the project assists the region in adapting to the effects of climate change. Also, describe how well you anticipate the project will perform when considering the projected effects of climate change, such as more extreme weather events, warmer/dryer conditions, earlier snowmelt, etc.

GHG Emissions Reduction (maximum 200 words)

Briefly describe how the project mitigates for GHG emissions. Additionally, describe the process by which the project considered GHG reduction among project alternatives. **See attached *GHG Reduction Considerations for Project Design and Alternatives*.**

VIII. Project Status and Schedule

Determine the status of the project by indicating if it is in a conceptual stage. If it is further developed, describe the level of completion in each project stage. Additionally, describe the activities and expected schedule for each stage.

For Conceptual Projects Only: The Project is currently in the Conceptual Stage: YES (highlight in gray if applicable)

Note: If the project is in the conceptual stage only, do not fill out the following table.

Project Stage	Description of Activities in Each Project Stage	Planned/Actual Start Date	Planned/Actual Completion Date
Planning			
Design			
Environmental Documentation (CEQA/NEPA)			
Permitting			
Tribal Consultation (if not applicable, indicate by N/A)			
Construction/ Implementation			

IX. Project Technical Feasibility

Provide any related documents that describe and confirm the technical feasibility of your project.

a. List the water planning documents that specifically identify this project.	
b. List the adopted planning documents the proposed project is consistent with (e.g., General Plans, UWMPs, GWMPs, Water Master Plans, Habitat Conservation Plans, etc.)	
c. List technical reports and studies supporting the feasibility of this project.	
If you are an Urban Water Supplier:	
1. Have you completed an Urban Water Management Plan and submitted to DWR?	
2. Are you in compliance with AB1420?	
3. Do you comply with the water meter requirements (CWC Section	

525)?	
4. If the answer to any of the questions above is "no," do you intend to comply prior to receiving project funding?	
If you are an Agricultural Water Supplier:	
1. Have you completed and submitted an AWMP?	
2. If not, will you complete an AWMP prior to receiving project funding?	
If the project is related to groundwater:	
1. Has GWMP been completed and submitted for the subject basin?	
2. If not, will the GWMP be completed within one year of the grant submittal date?	

GHG Reduction Considerations for Project Design and Alternatives

IRWM Guidelines suggest that common emissions sources from projects are related to:

- Operations of construction equipment
- Passenger vehicle trips during construction and operation
- Transportation of construction materials and equipment
- Transportation of material inputs for O&M
- Transportation of material outputs or production
- Generation of electricity used for operation of projects
- Waste generation and disposal of materials during construction and operation

Reduction strategies during project design and project mitigations under CEQA/NEPA review could include any of the applicable measures listed below:

<u>Project construction-related transportation</u>

- Offer local contractor preference and local purchase of construction materials where possible to reduce transportation-related emissions
- Encourage or require carpooling within construction contracts
- Encourage use of B20 fuels in construction equipment and other diesel machinery
- Restrict inappropriate OHV use, particularly in sensitive or restored areas where project investments have been made

<u>Project construction-related emissions</u>

- Encourage or require recycling of construction waste, such as brick, concrete, lumber, metal, and dry wall, as may be required within Shasta County from the proposed Lumber Waste Diversion Ordinance
- Pursue projects in this Plan that would use biomass from fuels reduction projects
- Capture sequestration opportunities with forest, sage-steppe, riparian, and grassland revegetation, stabilization, and restoration projects

Water supply and water efficiency improvements

- Select project components and upgrades, such as pumps, based on energy efficiency
- Schedule pumping to reduce peak hour (12:00 to 5:00, highest carbon output) energy use
- Select projects that offer the best water conservation options among project choices (e.g., greatest reuse/recycling, greatest reduction in leakage or evaporation per mile)
- Install solar generation equipment for pumping and other energy-generation needs to reduce both emissions and long-term O&M costs
- Increase conservation/reduce water use (and thus the energy and emissions related to its delivery) with increased metering, favorable rate incentives for conservation, and education within utility bills

Yuba County IRWMP | 2015 UPDATE

APPENDIX 14-3

Economic Feasibility Questionnaires

Note: Not all projects were sufficiently developed to complete Economic Feasibility Forms.

Questions to Support Future Evaluation of Cost Benefit of Projects for Project Review Process

As part of its Integrated Regional Water Management (IRWM) program, the California Department of Water Resources (DWR) has outlined a set of standards that groups must define and follow as they set up an IRWM Plan. DWR provides guidance on what these standards should look like, but offers some flexibility for groups to define what best serves their geographical, cultural, and procedural context. One of the standards requires that an IRWM Plan contain a process or processes to select projects for inclusion in the IRWM Plan (Standard 6. Project Review Process). At a minimum, the process must address a list of factors that DWR considers important in a transparent and technically useful review. These factors are outlined in detail in Appendix C of the *Guidelines for Integrated Regional Water Management*, November 2012.

Among the review factors that a project review process should employ when considering projects for inclusion in the IRWM Plan is *Factor H. Economic Feasibility*:

> ***H. Economic Feasibility***
>
> *As part of the project review process, the economic feasibility of a project should be considered. DWR's "Draft Economic Analysis Guidebook" (Guidebook), published in January 2008, outlines methods for economic analysis for water resources planning and can be downloaded from the link found in Appendix A: http://www.water.ca.gov/economics/guidance.cfm*
>
> *A preliminary economic analysis must be included as part of the criteria in the project selection process based upon an original assessment of the proposed project or studies conducted within the past five years and updated to most current data available. Either a cost-effectiveness or benefit-cost analysis may be used for the preliminary assessment depending on the nature of the project. Both of these methods are outlined in Chapter 3 of the Guidebook. For example, a cost-effectiveness analysis may be preferable for habitat restoration projects for which it is difficult to assign monetary benefits. The chosen method of analysis must include the types of benefits and types of costs including capital costs, O&M costs, and potential adverse effects to others from the project, described in the Guidebook (See Guidebook pages 14 and 22).*

DWR Rationale for Factor H: Economic Feasibility

Conversations with DWR staff indicate that, under this review standard, the guidelines stipulate that economic feasibility to "be a part of how the region evaluates projects." However, DWR staff further indicted that the department doesn't "want to dictate how regions chose to use the economic information." Further, staff was clear that DWR "won't hold [IRWM Plans] to a specific methodology," and specifically, a project-level benefit-cost or cost-effectiveness analysis is not required to satisfy Factor H.

Economic Feasibility Review Questions

Background

There are a wide variety of challenges that IRWM Plan groups have had with developing economic

feasibility criteria for use during the early review process that brings projects into the IRWM Plan. These challenges include the following:

- Lack of quantifiable information about the project's benefits and costs at the early stage of development they're in when they're accepted into the IRWM Plan.
- Lack of resources among project proponents to develop robust information at the level needed to conduct any kind of comprehensive economic analysis.
- Lack of sophistication among project proponents to complete a quantified assessment of the economic feasibility of their projects.

With this in mind the following streamlined approach that is simpler than a full benefit-cost or cost-effectiveness analysis will be applied to project-level evaluations as part of the project selection process. Because other factors focus on project costs, these questions focus on economic benefits.

This simplified set of criteria, firmly grounded in standard economic practice, is considered to satisfy the Factor H review standard. Specifically, the questions shown below would do the following:

- Rely on preliminary information that is readily available to project proponents at a conceptual project design phase.
- Emphasize qualitative versus quantitative assessments.
- Help project proponents and IRWM Plan managers begin to think about strategies to address the more detailed economic analysis required for the Implementation Grant application.

BYLT-01 Yuba Land Conservation Easements

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
No
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. The purpose of conservation easements are to protect and enhance biodiversity by permanently prohibiting any action that would be a detriment to the natural habitat.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. If the conservation easements protect timber or agricultural values, it will mean the land must be sustainably timber harvested and/or farmed forever. This protects conservation jobs on the land with the easements, forever.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
No

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
No
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. Natural habitat will be protected in this location forever.

Is the project likely to result in a reduced risk of loss of life or damage to property?
No
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The benefits of the project will be distributed widely. The upper Yuba watershed benefits will improve water quality and availability for all customers YCWA service delivery.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project supports conservation easements that run with the deed and are in place in perpetuity, no matter who the successor landowners are.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
As mentioned above land conservation will produce benefits across a wide area, particularly for animal migration routes. Plus there will be positive regional economic impact for agricultural and forest products.

BYLT-02: Yuba Watershed Forest and Fuels Project

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. The project would complete feasibility, design, and/or engineering studies that are necessary before the financing and construction of a business center for the utilization of forest biomass. Eventual construction of the center would create physical infrastructure (e.g., biomass power plant, wood pellet plant, etc.) that would facilitate forest fuels treatments by create value-added markets for forest residues. In turn, water quality and water delivery would be improved by reducing the risk of wildfire impacts to the existing water system in the Yuba foothills.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. The project would invest in natural capital by: 1) implementing fuels treatments to increase the resilience of forest landscapes to the increased wildfire risk posed by changing climate conditions, and 2) planning and implementing forest rehabilitation and soil stabilization projects on critical watershed lands adjacent to the Yuba River. These planning and implementation components will lead to self-sustaining improvements in the natural habitats and ecosystems of watershed lands.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. The project would provide public education to homeowners on near-home vegetation management and home construction tips to decrease the risk of home loss during a wildfire. Studies and plans funded by the project would add to the knowledge base of local residents and land managers.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The implementation of this project will require the coordination of a diverse group of project partners and collaborators, encouraging new relationships to develop and encouraging collaborative solutions to the region's challenges.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
No.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. A new Yuba River Trail will be constructed (not a part of this proposal) through part of the project area. The forest rehabilitation and fuels treatment at Rice's Crossing (Component 2) will promote safe and enjoyable recreation along this trail. This is a particularly dramatic view shed that will be enhanced by the project with views as far as Grouse Ridge. In addition, wildlife habitat will be enhanced.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes. All three of the project components (forest fuels treatments, forest rehabilitation, and the value-added utilization of forest biomass) will contribute to a decrease in the risk of catastrophic wildfires in the region, which in turn will decrease the risk of loss of life or property damage from these wildfires.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. As explained above, the project will result in a decreased risk of catastrophic wildfires that could have significant impacts on water infrastructure and water service. Reducing wildfire risk will also reduce risk of disruption of other critical services like emergency response. Implementing the fuels treatments as recommended in the updated Community Wildfire Protection Plan (CWPP) will increase firefighter safety and safe egress for residents during a wildfire scenario.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. New information will be generated by the assessments and plans related to forest rehabilitation at Rice's Crossing. These studies are required prior to implementation of forest rehabilitation actions. In addition, the feasibility, design, and engineering studies, and environmental compliance and permitting actions related to the biomass utilization campus are required before the financing and construction of elements of the campus, such as a biomass gasification plant, which would have longer-term, more widespread benefits.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The benefits of the project will be distributed widely. This project is composed of several components, each of which will be implemented by a diverse group of stakeholders. The project will benefit several different communities and areas in the Yuba foothills. The CWPP was created using a collaborative

process with input from 5 public meetings, and CWPP projects will be distributed through the county. Forest rehabilitation will benefit all downstream water users and adjoining watershed ecosystems. A successful investment in biomass utilization enterprises will help create local jobs both at the campus and for local timber operators who will harvest and transport forest residues to the campus. The upper Yuba watershed benefits will improve water quality and availability for all customers of YCWA service delivery. Also, the additional tourism that will be accommodated at Rice's Crossing will benefit the entire region.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Some of the benefits produced by this project, such as those from fuels treatments recommended by the CWPP, will be relatively short-lived and will require additional, ongoing investment. However, this points to the need for more self-sustaining, market-driven solutions to the challenge of excess forest fuels. Investment in the development of local value-added markets for forest biomass (which is a component of this project) is an example of a longer-term solution. Successful business ventures, such as a wood pellet plant or a biomass gasification facility, would allow fuels reduction work to be accomplished at a reduced or minimal cost by providing a market for the material generated. It is also hoped that forest rehabilitation plans and treatments will set rehabilitated watershed lands on a trajectory towards self-sustaining, long-term supply of ecosystem services such as soil stabilization, wildlife habitat, and maintenance of water quality.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
As mentioned above, the multiple project components are spread across the Yuba foothill region and will likely produce benefits across a wide area. These benefits are not limited to the project sites. Fuels treatments will help reduce wildfire risk on a landscape level, benefitting adjacent watershed lands and downstream areas (e.g., by reducing post-fire sedimentation rates). Forest rehabilitation and soil stabilization in previous wildfire areas will have similar benefits to adjacent lands and downstream areas. The successful incubation of local value-added biomass utilization business enterprises will produce benefits for all forested lands that are tributary to the site. Healthy forest management for safe and enjoyable public recreation will have a positive economic impact.

CCSD-01: Camptonville Water System Improvement Project

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, storm water control infrastructure, or wastewater infrastructure?)
Yes, the project will funds capital improvements to water delivery infrastructure, including new ground water sources, secondary treatment capabilities for ground water supplies, new solar power generation to run the treatment plant, and new water meters at the customer tie-in.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The solar power generating capability will reduce the carbon footprint of the plant with subsequent benefits to the overall ecosystem, offsetting GHG associated with construction and with energizing multiple well sources.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project will enable significant learning on the part of the water system operators and the district board, building skills in water treatment and distribution, data management, customer service, and applicable rules and regulations governing managing, developing and bidding publics works construction projects. The project will include an educational component, providing monthly water use articles for our customers.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The project brings together the community of Camptonville along with the Yuba County Water Agency, the Yuba County IRWMP, the CABY IRWMP, Sauers Engineering & Associates to solve Camptonville's water supply issues. The project overall has provided a platform for the Camptonville Community Services District and its water system operators to increase its understanding of the applicable rules and regulations governing drinking water supply and treatment. The educational component of the project will provide water customers and all Camptonville residents with a better understanding of where our water comes from and best to conserve it.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. The water system has documented shortages of surface water in drought years that requires the use of groundwater sources. The current groundwater sources have rapid draw-down and poor water quality. The project proposes to find and develop new ground water sources to address documented water shortages in drought years.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes. The water system supplies both drinking water and fire suppression water. In times of water shortage, maintaining a sufficient water surplus for fire suppression becomes a secondary concern over supplying drinking water. By improving our ground water source supply, the water system will be better able to meet both drinking water and fire suppression needs – both of which become extreme during summer drought months.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. Our worst-case scenario is a drought where our surface source is not able to maintain a reasonable supply of drinking water, hence ground water sources are activated – and then a summer-time wild-fire knocks out electrical power for an extended period. The availability of solar generated power at the plant will be sufficient to provide power for the plant and one new well to be located at the plant.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project impacts 72 metered customers.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project would have a life-span of twenty years for most of the capital improvements planned.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The ability to source groundwater during a drought will allow surplus streamflows past the intake structure. This will have a positive impact on the watershed below the system intake structure. The creek does have a history of drying in late summer; the ecosystem is adapted to this condition.

WTLD-01: Citywide Storm Drain Improvement Project

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project will make an investment in physical capital by installing approximately 500 linear feet of storm drain pipe, three (3) storm drain manholes, two (2) catch basins, six (6) stormwater trash capture devices, and multiple small and one large drainage culverts.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project will make an investment in natural capital by installing trash capture devices to remove large and small debris from stormwater discharge. Thus, investing in the protection of downstream marine and local natural habitats.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project will make an investment in human capital by providing additional flood protection to the entire population of Wheatland (approx. 3,500 residents).
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project is a long-term investment in social capital. As the population of Wheatland is projected to increase, the project will invest in the social capital of the residents of the City of Wheatland by complying with future water discharge compliance requirements of the State of California Water Quality Control Board that will be triggered with the anticipated population growth.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
A majority of the City of Wheatland is currently designated in a 100 year-storm Flood Zone "A" by FEMA. The project will provide additional flood protection to residents of the City of Wheatland by mitigating flood hazards. In addition, the project will provide flood protection to land that is currently

economically infeasible to develop.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project will not likely enhance or create features of natural habitat.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project is likely to result in reduced risk of loss of like and damage to property by mitigating flood hazards and removing property from the 100 year-storm flood event.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project is likely to provide additional protection to disruption of critical services, by providing flood protection to emergency service routes currently located in the 100 year-storm floodplain.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is the first step in a larger scale storm drain master plan. The goal of the storm drain master plan and projects are aimed to enhance flood control management for the residents of the City of Wheatland and unincorporated land around Wheatland.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project benefits are distributed widely across the entire community as the project improvements are located in multiple areas throughout the City.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project benefits will not accrue but provide direct and immediate benefits during the wet season when the project is be completed.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will benefit the residents of Wheatland in addition to downstream watersheds. The removal

of trash and debris will benefit downstream marine and river/streambed habitat.

WTLD-02: Dry Creek Levee Improvement Project

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project will make a major investment in physical capital by constructing stormwater control infrastructure. The project will rehabilitate and improve 4.4 miles existing uncertified levee.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project will make an investment in natural habitat by improving and/or restoring 42 acres of riparian habitat adjacent to the levee.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project will make an investment in human capital by providing additional flood protection to approximately 1,955 acres of land within the City of Wheatland Sphere of Influence.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project is likely to make an investment in social capital by changing the flood zone designation from Zone A to Zone X, which alleviates the legal requirement of the residents of the City to carry flood insurance.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The project outcomes address an issue of the scarcity of economically feasible developable land within the City of Wheatland Sphere of influence, by providing additional flood protection which changes development requirements under the City's Municipal Codes.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project will create an additional 42 acres of riparian habitat adjacent to the levee.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project will result in reduced risk of life and damage of property by removing the City and land within its sphere of influence from Flood Zone A.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project is likely to provide additional protection to disruption of critical services, by providing flood protection to emergency service routes currently located in the 100 year-storm floodplain.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Other levee alternatives have been previously studies and this project was chosen as it yields the most widespread benefit of flood protection.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will produce widespread benefits as the project benefits all residents within the City and some residents within the sphere of influence.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project benefits will occur immediately, as the completion of the project and certification of the levee will provide the additional flood protection and removal of 1,955 acres of land from a flood zone.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The overall project scope was developed to provide the benefit of flood protection to the residents of the City of Wheatland. As part of the project scope, the riparian habitat improvement/restoration will mitigate all downstream effects of the project.

WTLD-03: North Stormwater Detention Basin Rehabilitation

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project will make an investment in physical capital by constructing of a de-silting basin at the pump intakes, replacing existing pumping equipment that has reached its service life, establishing an outlet canal to prevent erosion near the existing levee and repair erosion at the toe of the levee.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project will make an investment in natural capital by modifying the existing basin to reduce silt runoff downstream and modify the discharge of the basin to mitigate erosion of the levee.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project will make an investment in human capital by providing additional drainage capacity and flood protection to the entire population of Wheatland (approx. 3,500 residents).
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project is a long term investment in social capital. As the population of Wheatland is projected to increase, the project will invest in the social capital of the residents of the City of Wheatland by complying with future water discharge compliance requirements of the State of California Water Quality Control Board that will be triggered with the anticipated population growth.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
A majority of the City of Wheatland is currently designated in a 100 year-storm Flood Zone "A" by FEMA. The project will provide additional flood protection and drainage capacity to residents of the City of Wheatland by mitigating flood hazards. In addition, the project will provide flood protection to land that

is currently economically infeasible to develop.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project will not likely enhance or create features of natural habitat.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project is likely to result in reduced risk of loss of like and damage to property by mitigating flood hazards and removing property from the 100 year-storm flood event.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project is likely to provide additional protection to disruption of critical services, by providing flood protection to emergency service routes currently located in the 100 year-storm floodplain.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is the second step in a larger scale storm drain master plan. The goal of the storm drain master plan and projects are aimed to enhance flood control management for the residents of the City of Wheatland and land within its sphere of influence.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project benefits are distributed widely across the entire community as the basin is the primary stormwater discharge location for the City's storm drain network.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project benefits will not accrue but provide direct and immediate benefits during the wet season when the project will be completed.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will benefit the residents of Wheatland in addition to downstream watersheds. The removal

of silt runoff will benefit downstream marine and river/streambed habitat.

WLTD-04: Reclaimed Water Feasibility Study

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project does not include permanent improvement as the project will assess the feasibility of providing reclaimed water for landscape and farm irrigation purposes.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project does not make an investment in natural capital as the project is a study and will assess the feasibility of providing reclaimed water for landscape and farm irrigation purposes.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project will make an investment in the human capital by providing information to its residents on the City's potential use of reclaimed water.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project makes does not make an investment in social capital as the project is a planning level study/assessment.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Governor of California has declared a drought State of Emergency in January 2014. This project will provide the City information on the economic feasibility of a reclaimed water system for the City of Wheatland. A reclaimed water system would provide an additional source of water to its residents in addition to the City's six wells.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project will not create or enhance natural features as the project is a feasibility study.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project will not result in the reduced risk of like or damage to property.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project itself will not result in a reduced risk of disruption of critical services. However, a reclaimed water system will reduce the ongoing demand on the existing potable water system that is used for fire suppression.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
This study is the first step in developing and implementing a recycled water system. The study is complementary to a separate related project to upgrade the existing wastewater treatment plant which includes incorporating the capability for tertiary treatment and distribution of recycled water.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The ultimate goal of the study is to determine the economic feasibility of a reclaimed water system. The system will benefit the entire population of the City of Wheatland and farmers within the City's sphere of influence.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project will continue to accrue benefits over time as a recycled water system is designed to implement sustainable water use and water conservation.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will likely produce benefits that materialize across the entire population of the City of Wheatland. Completion of a recycled water system and upgrade the existing wastewater treatment plant to a tertiary system will have benefits to downstream habitats as the discharge of the volume

wastewater will be reduced.

WLTD-05: Stormwater Program Management – Equipment Purchase

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project will make in investment in the physical capital of the City's existing stormwater control infrastructure. The purchase of the vehicles will allow the City to maintain compliance with State and Regional Water Quality Boards and Clean Water Act requirements.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project does not make an investment in natural capital as the purchase of the equipment will be used for maintenance of existing stormwater infrastructure.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project makes an investment in human capital by providing training to public works maintenance crews on use of the equipment.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project makes an investment in social capital by the City having the ability to provide critical services and maintain existing infrastructure to comply with State and Regional Water Quality Boards and Clean Water Act requirements.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Purchase of the equipment will allow the City to perform stormwater program management maintenance without the need to contract these services out to a vendor/contractor.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The equipment is built for a specific use and cannot be used for future projects to create or enhance natural features.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The purchase and use of this equipment is not likely to reduce the risk of loss of like or damage to property.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The purchase and use of this equipment will not result in reduced risk of disruption of critical services.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The purchase and use of the equipment will not result in new information or actions required to complete a larger project.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Purchase of the equipment will allow the City to perform stormwater program management maintenance without the need to contract these services out to a vendor/contractor. As such, the stormwater program will be able to provide the services required to the entire population of the City.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Purchase of the equipment will allow the City to perform stormwater program management maintenance without the need to contract these services out to a vendor/contractor. This immediate and on-going benefit will accrue over time by providing its services in a more cost effective manner than to contract the services.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will likely produce benefits that materialize across the entire population of the City of

Wheatland, as the equipment will be used for City services.

WLTD-06: Wastewater Treatment Plant Improvement

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project makes an investment in physical capital by improving the existing wastewater treatment plant by construction tertiary treatment, and relocating infiltration basins to be removed from the floodplain.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project will make and investment in natural habitat by discharging tertiary treated waste instead of secondary treated effluent into the Bear River.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project makes an investment in human capital by educating its residents on wastewater treatment and recycled water use.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project makes in investment in social capital by providing education to residents on wastewater compliance and recycled water use.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Governor of California has declared a drought State of Emergency in January 2014. This project will provide the City the ability to use tertiary treated water for a reclaimed water system for the City of Wheatland. A reclaimed water system would provide an additional source of water to its residents in addition to the City's six wells.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project will enhance natural features by restoring riparian habitat along Bear River where the existing infiltration ponds exist.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project is not likely to result in a reduced risk of loss of life or damage to property.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project itself will not result in a reduced risk of disruption of critical services. However, a reclaimed water system taken from the tertiary treatment ponds will reduce the ongoing demand on the existing potable water system that is used for fire suppression.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project will result in information to help calculate the amount of recycled water that can be taken from the tertiary treatment. This project will lead to the planning and construction of a recycled water system.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Upgrade of the wastewater treatment plan will benefit the entire population of the City of Wheatland. However, a reclaimed water system that include water from the tertiary treatment ponds will impact farmers and land owners within its sphere of influence.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project benefits will provide direct and immediate benefits to its residents as well as accrue over time. The upgraded plant can provide a continued source of recycled water.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will benefit the residents of Wheatland in addition to downstream watersheds. The

discharge of tertiary treated wastewater will reduce the impact to downstream watersheds.

WLTD-07: Wheatland Water Supply Reliability

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project makes an investment in physical capital by assessing, repairing, and/or replacing deficiencies to the well computer control systems and sensors.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project makes an investment in natural capital by providing adequate monitoring of the groundwater use of the wells.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project is not likely to make and investment in human capital as the project will replace, and retrofit aging groundwater well infrastructure.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project makes an investment on human capital as the project will mitigate the impacts of regulatory compliance on water management decision-making and processes.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Governor of California has declared a drought State of Emergency in January 2014. Well system monitoring will ensure an adequate water supply that meets the need for the City of Wheatland and its residents.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project does not create or enhance feature as the project is to repair and improve existing water

deliver infrastructure.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project is highly likely to result in reduced risk of loss of life and/or damage to property by ensuring an adequate water supply for fire suppression.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project is highly likely to result in reduced risk of disruption of critical services by providing an adequate non-leaking water system for fire suppression.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project will result in new information to complete a larger scale project. In order to determine leak locations, replacement of failing meters at the six existing wells to adequately quantify the supply of water to the system. Other phases of the project will consist of a leak detection assessment and repairs of leaks to the system.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will produce benefits that are distributed across the entire population of the City of Wheatland as the project improves water infrastructure reliability.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project will produce changes that are self-sustaining. The project enables the city to adequately monitor the well production and assess leaks on an on-going basis.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project is likely to benefit only to the City of Wheatland and its residents.

WLTD-08: Well System Monitoring Rehabilitation

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The project makes an investment in physical capital by construction and repair of permanent water delivery infrastructure, such installation of a ground mounted hydro-pneumatic tank, booster pump, and replacement of existing well meters.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project does not make an investment in natural capital as the project is to repair and improve existing water deliver infrastructure.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
The project is part of a larger water conservation campaign by the City of Wheatland. The project will provide additional education to resident of water service leaks and repairs.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project is part of a larger water conservation campaign by the City of Wheatland. The project will provide additional education to resident concerning efficient water use.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Governor of California has declared a drought State of Emergency in January 2014. Replacement of the City's water tower with a ground mounted storage tank would allow the City of Wheatland to efficiently store water in its storage tanks.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The project does not create or enhance feature as the project is to repair and improve existing water deliver infrastructure.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project is highly likely to result in reduced risk of loss of life and/or damage to property by removal of a hazardous seismically deficient water tower, increase water storage capacity, and provide additional pressure for fire suppression.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The project is highly likely to result in reduced risk of disruption of critical services by providing additional pressure to the existing water mains for fire suppression.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project will result in new information to complete a larger scale project. In order to determine leak locations, the City needs replacement of failing meters at the six existing wells to adequately quantify the supply of water to the system. Other phases of the project will consist of a leak detection assessment and repairs of leaks to the system.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will produce benefits that are distributed across the entire population of the City of Wheatland as the project improves water infrastructure reliability.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project will produce changes that are self-sustaining. The project enables the city to adequately monitor the well production and assess leaks on an on-going basis.

Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project is likely to benefit only to the City of Wheatland and its residents.

NYWD-03: Forbestown Ditch Improvement Project

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes; permanent infrastructure will include canal lining/piping infrastructure, pumps (as appropriate), and meters (as appropriate). This infrastructure will convey raw water for potable and agricultural (non-potable) use. The piped section will be protected from stormwater overland flow, protecting from negative water quality effects of inflow.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
No.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes; this project will include the training of NYWD regarding maintenance of the lined canal and pipes installed. In addition, piping and lining the ditch will significantly decrease the amount of maintenance hours required to keep the ditch in working order, freeing staff up to spend time on other things.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes; this project will help the NYWD to solve a challenge they've encountered with their legal agreement with the South Feather Water and Power Authority (the cost of water, and their responsibility for the ditch, including leakage) and legal and financial issues with water supply, quantity, and cost. This will improve the relationship between these two entities, and will put the NYWD on solid financial footing when compared with other water purveyors in the region.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes; lining and piping the Forbestown Ditch will allow for the NYWD to save at least 4,120 AFA, or up to 7,620 AFA. In drought years (such as this one), irrigators in the NYWD are not able to get water; lining

this ditch will allow the NYWD to get water to these irrigators by significantly decreasing losses, resulting in a better financial situation for the district and more affordable water for the irrigators. This project could also – potentially – increase capacity on the Forbestown Ditch, allowing more irrigators downstream to get access to the system.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes; lining and piping the ditch will result in a more sustainable water supply that is better able to hold up against catastrophic events, such as forest fires or mass slump events. In addition, the open ditch is currently something of an attractive nuisance. It flows directly through a children's summer camp, and could be a significantly dangerous attraction to campers if left unpiped.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes; lining and piping the ditch will result in more effective and efficient potable water service to the communities served by the NYWD. Currently, mass slumping, catastrophic fire, contamination, falling trees, and other events can interrupt potable water service to several hundred customers. Ditch lining and piping will result in a more robust structure able to withstand more of these events without interrupting service.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes; the results of this project will allow the NYWD more flexibility in its water supply, as well as meet proposed regulatory requirements from the State Water Resources Control Board in helping the NYWD to keep their water rights. Adding flexibility into the system will result in significant advances in financial capacity for the NYWD, which will bring about widespread benefits to the region.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The economic benefits of this project will be felt by the entire population served by the NYWD. These benefits will be felt in particular by the agriculturalists on the southern end of the NYWD system.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The saved water will be saved in perpetuity, as long as the canal/pipeline is maintained. Again, savings are at least 4,120 AFA, and up to 11,620 AFA, depending on the level of irrigation demand.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Benefits will accrue to the immediate NYWD service area in terms of conserved water and better economic outlook. Benefits will also be felt by the Feather River system, as more water will be able to be left in the river there due to avoided losses in the canal.

OPUD-01: Recycled Water Distribution System

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No
Is the project likely to result in a reduced risk of loss of life or damage to property?
No

Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes, widely across many people.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes, benefits will continue to accrue.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Wide geography.

OPUD-02: Olivehurst Water Main Replacement

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
No
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
No
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes

Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes, widely across many people.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes, benefits will continue to accrue.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Wide geography.

RD784-01: Acquisition of Landside Urban Levee Maintenance Corridors

Project Description

Purchase Land for Creation of Landside Levee Maintenance Corridors:

California Title 23, the California Urban Levee Design Criteria and the US /Army Corps of Engineers regulations all require the acquisition either in fee or easement of landside maintenance corridors needed to patrol and if necessary, flood fight. In the past land rights were not obtained in many areas. The Yuba River South Levee abuts the Silverwood Estates residential neighborhood where no land rights were obtained and no maintenance corridor was established. The cost to comply with Maintenance Corridor regulations is well beyond the financial capability of Yuba County or Reclamation District 784. The urban basin serves two Disadvantaged Communities as well as other vital infrastructures and populations..

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Landside Levee Maintenance Corridors are required by State and Federal regulations. The fee simple land acquisition within the RD784 urban basins will allow for flood fight activities enhancing safety, community growth, industrial development, residential development and jobs.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Maintenance corridors have acted as buffers between development and levee structures. Depending upon the required width of the corridors as determined by state and federal regulations and the abutting landscapes, some corridors have supported a variety of wildlife species. Some corridors have been used as pedestrian and bicycle trails. In order to act as inter-urban trails, the land must be owned fee simple by a government agency. The current patchwork of ownership has made trail development problematic.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Levee maintenance corridors (and in some cases the levees themselves) have been used as venues for community fundraising events which allow the community to see the urban/ river environment interface. Such use can be a catalyst for educational programs for all ages.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Establishment of landside maintenance corridors are identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. Landside maintenance corridors are also recognized as essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR 200 year certification. Fee simple ownership is required if public access along the levee is desired.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Landside pedestrian and bicycle access trails might be created if compliant with CA Title 23.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, a major highway, and several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal levee system that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make a continued investment to maintain the systems.

Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within the single basin but could create trails for access to the general public both inside and outside the localized geographical area.

RD784-02: Chestnut Pump Station Reconstruction

Chestnut Pump Station Upgrade: Project Description

Demolition of the current facility and construction of a new pump station at the current site with two pumps (primary and redundant) capable of pumping 15 cubic feet per second (cfs) controlled by a SCADA motor control system. A back-up generator would replace diesel motor back-up reducing air pollution and supply reliable power. A Closed Circuit Television Camera (CCTV) and a motion activated camera security system would also be installed to protect the facility. The CCTV camera would be part of an existing CCTV system already in place.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The reconstructed pump station would enhance the safety and reliability of the storm water control infrastructure system in the Northeast portion of the District within the disadvantaged community of Linda. This project replaces old pumps, replaces a World War II diesel engine use to provide back-up power and provides cleaner power.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project is part of a larger District wide internal drainage system that protects lands within the basin from flooding thereby sustaining the existing natural and ecosystems.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Only minor impacts anticipated.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project will enhance localized flooding safety within the Linda area and allows community growth.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Pump Station 2 upgrades are part of graduated improvement identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. The RD784 internal drainage system is also recognized as an essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR

200 year certification.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No additional natural features are created.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint. The enhancement to PS 2 adds pumping redundancy at one of the critical drainage systems.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, senior services, a major highway, several commercial areas
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal drainage improvement that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make a continued investment to maintain the systems.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within a single basin but creates a “safe haven” for wildlife within the river bottoms in the event of high water and human populations in the event of flooding in adjacent

cities and unincorporated areas.

RD784-03: Edgewater Detention Basin and Pump Station 5 Improvements

Avondale Pump Station 5 Upgrade: Project Description

Phase I: ($2 Million) Demolition of the current facility and construction of a new pump station at the Edgewater Detention Pond with two pumps (Primary and Redundant) capable of pumping up to 35 cubic feet per second (Between both pumps) controlled by an automated SCADA system (Supervisory Control and Data Acquisition).

Phase II: ($1.5 Million) Installation of a Diesel Backup Generator capable of replacing lost commercial power to both pumps simultaneously in the event of an emergency.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The Avondale Pump Station, PS 5, is a storm water control infrastructure pump station that serves the East Linda area located in the northeast section of the RD784 urban basin. These upgrades would allow the additional residential and commercial development of area. The upgraded pump station and detention basin are part of a larger phased stormwater control infrastructure system. Phase 1, the construction of a new pump station would increase energy efficiency by installing new pumps which would also better protect the community and allow for growth. The creation of a detention basin would not only better protect the community but allow for flexibility to explore the use of storm water for ground water recharge and/ or non-potable irrigation uses for residential and farm applications. Phases 2, the acquisition and installation of an emergency generator would assure back-up power and continued operation even during loss of commercial power.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project is part of a larger District wide internal drainage system that protects lands within the basin from flooding thereby sustaining the existing natural and ecosystems. The levee and internal drainage systems provide “safe haven” for wildlife species during high water within the river bottoms.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Only minor impacts anticipated unless storm water can be utilized in non-potable residential and/ or farm applications.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project will enhance localized flooding safety within the Linda area and allows community growth including high density housing.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Avondale Pump Station (PS5) upgrades are part of graduated improvement identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. The RD784 internal drainage system is also recognized as an essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR 200 year certification.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
The detention basin may create a year-round pond area which will attract migratory birds adjacent to a neighborhood trail.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint. The enhancement to PS 5 may add pumping flexibility that could lead to ground water recharge and/ or agricultural use of storm water.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, senior services, a major highway, and several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal drainage improvement that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make a continued investment to maintain the systems.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within the single basin but creates a “safe haven” for wildlife within the river bottoms in the event of high water and human populations in the event of flooding in adjacent cities and unincorporated areas.

RD784-04: Pump Station 1 Reconstruction

Pump Station 1 Upgrade: Project Description

Currently, one pump is not operational and cannot be controlled remotely. The site is also vulnerable to theft and vandalism. The project would repair the inoperable pump, add a SCADA motor control system and add security features including a CCTV camera and a motion activated camera based intrusion alarm system. This pump station lifts water out of the Plumas Lake Canal at the East end and into the Algodon Canal. This pump Station protects the Plumas Lake Golf Club, farmland, commercial, government and residential properties including the Plumas Lake communities.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The Pump Station 1 upgrade would repair or replace two aged storm water pumps and motors that serves the south central portion of Reclamation District 784 including: the Plumas Lake Golf Club, farmland, commercial, government and residential properties including the Plumas Lake communities. The upgrade would also include electronic systems to remotely control and monitor the pump controls and a motion activated intrusion alarm system to safeguard the facility.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project is part of a larger District wide internal drainage system that protects lands within the basin from flooding thereby sustaining the existing natural and ecosystems. The levee and internal drainage systems provide “safe haven” for wildlife species during high water within the river bottoms.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Only minor impacts anticipated unless storm water can be utilized in non-potable residential and/ or farm applications. The Plumas Lake Golf Course currently uses ground water and diversion of storm water for golf course irrigation using existing drainage laterals is being explored.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project may encourage community interaction especially if alternative storm water utilization can be implemented.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Pump Station 1 upgrades are identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. The RD784 internal drainage system is also recognized as an essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR 200 year certification.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Minor wetland enhancement potential may be realized.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint. The enhancement to PS 1 may add pumping flexibility that could lead to ground water recharge and/ or agricultural use of storm water.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, a major highway, and several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal drainage system that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make a continued investment to maintain the systems.

Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within the single basin but creates a “safe haven” for wildlife within the river bottoms in the event of high water and human populations in the event of flooding in adjacent cities and unincorporated areas.

RD784-05: Pump Station 2 System Improvement

Pump Station 2 Upgrade: Project Description

Phase I: ($25,000) Installation of one Sonitrol PTZ (Point, Tilt, Zoom) security camera to enable personnel to capture video and still photo footage of the area to enhance security as well as provide remote monitoring of the pump station equipment and surrounding conditions, especially during flood season.

Phase II: ($500,000) Installation of a 4th Pump. This existing pump station currently comprises of 3 pumps but has the capacity to add a 4th pump to allow more drainage from future water runoff expected from anticipated continued development in the lower Plumas Lake Area.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Phase 1 will enhance the physical security of current physical capital that safeguards the water delivery, wastewater treatment facilities, stormwater control infrastructure, farming and food processing facilities that serve the disadvantaged communities of Linda and Olivehurst. Multiple schools and fire stations are also protected by Pump Station 2. The camera system will enhance system safety. Phase 2, the addition of a forth pump will also further enhance the physical safety of current physical capital but may also allow the District to redirect irrigation "tail water" for agricultural reuse and/ or groundwater recharge.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
If used to redirect and reuse "tail water", Phase 2 will likely result in reduced demand on river water while reducing the need to draw groundwater for agricultural use. Redirection of anticipated increase in collected storm water from residential development.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Minor impacts anticipated.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Phase 2 would likely increase interaction between the farm community, the District staff and the growing residential community from which much of the increased stormwater collection will be generated. The residential community will need to be urged to minimize pollution activities.

Evidence of Demand for the Project

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Pump Station 2 upgrades are part of graduated improvement identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. The RD784 internal drainage system is also recognized as an essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR 200 year certification.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No additional natural features are created.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk to life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint. The enhancement to PS 2 adds pumping redundancy at one of the critical drainage systems.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, senior services, a major highway, several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal drainage improvement that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make a continued investment to maintain the systems.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within a single basin but creates a “safe haven” for wildlife within the river bottoms in the event of high water and human populations in the event of flooding in adjacent cities and unincorporated areas.

RD784-06: Pump Station 10 Improvements

Pump Station 10 Upgrade: Project Description

Phase I: Installation of a remote access "Point, Tilt, Zoom" security / monitoring camera. ($25,000)

Phase II: Install storm drain line from current pump site to the Unit 9 Levee. ($2.5 Million)

Phase III: Install the Water Side Headwall at the water discharge outtake area ($100,000)

Phase IV: Construct the Water Side conveyance ditch leading to the Feather River ($1,000,000)

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The reconstructed pump station would enhance the safety and reliability of the storm water control infrastructure system in the Northeast portion of the District within the disadvantaged community of Linda. This project replaces old pumps, replaces a World War II diesel engine use to provide back-up power and provides cleaner power.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project is part of a larger District wide internal drainage system that protects lands within the basin from flooding thereby sustaining the existing natural and ecosystems.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Only minor impacts anticipated.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project will enhance localized flooding safety within the Linda area and allows community growth.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Pump Station 2 upgrades are part of graduated improvement identified in the RD784 Master Drainage plan and part of the Yuba County Master Plan. The RD784 internal drainage system is also recognized as an essential component of the Corps of Engineers Levee 100 year certification process and the CA DWR 200 year certification.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No additional natural features are created.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint. The enhancement to PS 2 adds pumping redundancy at one of the critical drainage systems.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, senior services, a major highway, and several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The project is part of a larger internal drainage improvement that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities. The larger internal drainage improvements will also result in lower FEMA Flood Insurance premiums resulting in more disposable income remaining within the local area.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Reclamation District 784 is funded to sustain the internal drainage system and the levees and will make

a continued investment to maintain the systems.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within a single basin but creates a “safe haven” for wildlife within the river bottoms in the event of high water and human populations in the event of flooding in adjacent cities and unincorporated areas.

SYRCL-01: Daguerre Point Dam Fish Passage Improvement

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. This project will modify Daguerre Point Dam, which will increase the longevity of the dam's operational use.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. The Daguerre Point Dam Fish Passage Improvement Project will improve fish passage for threatened species of anadromous salmon and will create increased population resiliency by removing a major barrier to natural spawning grounds. The Yuba's spring run Chinook salmon is listed as threatened under the Endangered Species Act (ESA). Each year, the US Fish and Wildlife Service publishes a report summing all ESA-related expenditures by species/population, to the extent that those expenditures can be tied to a particular species/population. The 2102 ESA-related spending tied to Central Valley spring-run Chinook salmon totaled $ $5,872,013 million (US Fish and Wildlife Service. 2012). This total does not include land acquisition costs. These expenditures, however, represent only part of the story. Government efforts to support species at risk also impose costs on society, primarily by restricting land use in protected areas (opportunity costs). Furthermore, other entities (e.g., non-profit organizations and private individuals) bear costs in implementing their own efforts to help support the species. Additionally this project would increase shade and recruitment of large woody debris and increase stream complexity, which would increase the sustainability of salmon and other aquatic species
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. This project will help advance the understanding of modifying dams, rather than removing them, to increase fish passage. This is a major issue on many rivers throughout the world. In addition, fish biologists will be trained to monitor the passage of fish over the dam to determine the effectiveness of the modifications to Daguerre Point Dam. Increased knowledge made possible by this project over the long term may increase the understanding of and support or demand for future dam modification projects. Increased community support for and participation in future public projects may make dam modification projects easier to implement and less costly to complete, resulting in additional water quality and quantity benefits at lower cost to the community.

Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The Daguerre Point Dam Fish Passage Improvement Project will result in agencies, private landowners, and non-profits working together to promote resiliency for threatened fish populations. This project will increase compliance with the Endangered Species Act and will require all of the partners to work together collaboratively. Working in collaboration with others on this project has the potential to strengthen the relationships among stakeholders, which constitutes an investment in social capital and may well result in additional improvements in quality of life of participants.

Evidence of Demand for the Project

This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Daguerre Point Dam fish ladders do not meet current fishery agency standards. Fish passage studies led by the Department of Water Resources described seven alternatives for improving fish passage at the dam. This is particularly true for spring- run chinook salmon that migrate during higher flows when the ladders are not easily accessible. Other concerns include predation under the dam, temperature extremes, and sediment capture. Currently, it is understood that the dam delays fish from passing to the upstream reaches of the Lower Yuba River, under-utilizing the available in-stream spawning habitat. Improving fish passage over the dam will open up more spawning habitat for migratory fish creating populations that are more self-sustaining. Additionally, individuals derive value from increases in salmon and steelhead populations in two ways: some(e.g., recreational anglers and commercial fishermen) directly interact with salmon and steelhead populations and derive benefit by catching and consuming the fish, others (including some from the former group) derive value from the fish solely based on the salmon and steelhead's existence. Studies have shown that regardless of direct interaction with fish populations, many Californians hold a positive willingness to pay to ensure the long-term survival of salmon and steelhead (Pate and Loomis 1997). Several studies have attempted to estimate the passive use value of increases in salmon and steelhead populations among households in California and neighboring states. Passive use value, in this case, refers to the benefit individuals derive from knowing that healthy salmon and steelhead populations exist, regardless of their intent to directly interact with salmon and steelhead through fishing or some other means. In general, these studies have estimated households' average willingness to pay to implement policies that would increase salmon and steelhead populations. At the per fish level, these studies reveal that households are willing to pay only fractions of a penny for increases in salmon populations. When summed across a region, however, the total value Californians are willing to pay for increases in fish populations is considerable. Applying the results of two studies that have estimated willingness to pay values for increases in salmon and steelhead populations suggest that Californians, in total, would be willing to pay between $497(Olsen, Richards, and Scott 1991)and $4,351(Loomis 1996) per fish.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. This project will increase the availability of instream spawning habitat for anadromous fish, for which there is no substitute.
Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. The return of salmon to the Yuba is a key requirement for restoring fish and fish habitat to the Yuba River. The long term benefits include resilient fish populations and the removal of currently immoveable obstacle for this species.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The beneficiaries of this project are the people of California who value the continued existence of aquatic wildlife and habitat, particularly critical habitat for Chinook salmon, and steelhead. It will particularly impact all persons living within the Sacramento River watershed and Sacramento-San Joaquin Bay Delta. Additionally, the beneficiaries will be the owners of the dam and the users dependent on the dam for water diversions. Some of these beneficiaries may include members of disadvantaged communities as Yuba County, where the dam is situated has multiple disadvantaged communities in its boundaries. Additionally, unlike many Californians who ascribe a monetary willingness to pay to protect salmon, even if they never intend to directly fish or watch them, many Native Americans recognize the importance of salmon outside the cultural framework and economic terms western society often imposes (Malloy1992). Accordingly, they reject the validity of applying a dollar value to fish that constitute a core element of their cultural and spiritual wellbeing. For this reason, we recognize the cultural significance that arises from the projects' improvements to salmonid populations and their habitat apart from the quantified passive-use value or other measures of economic benefits.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The benefits of improving fish passage in the Yuba River by modifying Daguerre Point Dam will be a long-term, self-sustaining endeavor. Because the dam is an existing structure that is already maintained, the cost associated with future maintenance should be nearly equal to what is already being invested in the dam at present.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Improving fish passage above Daguerre Point Dam will have both upstream and downstream benefits that will support California's salmon populations throughout multiple watersheds in the entire Bay-Delta region and into the Pacific ocean.

SYRCL-02: Water Conservation Education

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. This project makes an investment in the sustainable use of our drinking water.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes, this project will result in water use efficiency that may ultimately lead to less surface water and groundwater use in the Yuba River watershed. SYRCL has surveyed recipients of this program and has found --- even using conservative numbers – that real water savings result. For example, 40 assemblies with an average of 150 students per assembly, results in direct water savings due to students' behavior changes of between 1,472,000 – 8,280,000 gallons of water per year.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. This project will educate children about watersheds, the water cycle and how they can save water by using best practices in their daily lives.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. Water conservation is an important issue especially during a drought. Providing information that allows people to understand why their water is important and should be used sparingly is key to compliance with water use rules and regulations.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
It is estimated that each person in California uses over 179 gallons of water per day. As the county grows and the expected rainfall becomes more variable due to climate change, water conservation will be increasingly important for the resiliency and sustainability of our water.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
This project is likely to enhance the amount of available drinking water and irrigation supplies for the region and beyond as well as contributing to greater in-stream flows for aquatic species health.
Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. Conserving water will mean that there is more water available for everyone including fire protection and public heath and safety of residents in the region. While we cannot quantify the value of these improvements, they are likely significant.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. Water conservation is an important long term strategy for increasing per capita water availability across the state. By disseminating education to our youngest community members, we can expect to influence an entire generation of water-wise people.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The primary beneficiaries of the educational benefits of this program are school aged children, their families and schools as well as water agencies throughout the district and more broadly to the communities, including several disadvantaged communities where water conservation education is being administered.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
This project is likely to produce benefits that will be perpetuated throughout the educated individuals lifetime as well as permanently addressing water conservation problems at schools including schools in disadvantaged communities.

Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Water conservation education will benefit the local community, downstream users, and will impact the regional water budgets as well as several disadvantaged communities in the watershed.

SYRCL-03: Yuba River Recreation Projects

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. The project will create and maintain trails and provide informational kiosks about the Yuba watershed. The Yuba is a popular destination for tourists and recreationists and the trails and kiosks will be highly visible and highly used. These physical amenities will in turn, add to the economic growth of Yuba County and its Disadvantaged Communities by bringing in increased tourism dollars. This new physical capital improvements will improve the recreation experience of people who already visit the area and attract new recreationists.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
No.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes, the project will educate the general public about the ecology, history, and hydrology of the Yuba watershed. It will also bring together agencies, private landowners, and non-profits to plan and complete the project . The project will also offer volunteer opportunities in trail building and kiosk installation. These volunteers will learn about the Yuba ecosystem as they participate in the project and will learn important trail-building skills that can be used on other projects.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The project will promote awareness and recreation opportunities and will promote the celebration of the Yuba region. Working in collaboration with others on this project has the potential to strengthen the relationships among stakeholders, which constitutes an investment in social capital and may well result in additional improvements in quality of life of participants. There are also several ways the project will produce tangible economic benefits through volunteer and training opportunities. For example, volunteer and training opportunities may increase the public's understanding of and support for future projects. Furthermore, volunteering opportunities improve the well-being of people who choose to participate. These improvements may both result in water-supply or water-quality benefits directly, but they may better people's lives in other ways that have economic importance. Spending time outdoors may improve an individual's emotional and physical health, which constitutes an investment in human capital. Working with others in efforts such as trail building has the potential to strengthen the relationships among community members, which constitutes an investment in social

capital. Both of these effects may contribute to an overall improvement in quality of life.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The project will educate visitors about water use in the Yuba watershed. It will also provide more public access points to the river – a long-standing problem for residents and tourists in Yuba County.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. The project will enhance existing trails and create trails in areas along the Yuba River where public access is currently unavailable. It will also provide key connecting and extension points for existing trails, allowing the formation of a coherent watershed wide trail system.
Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes, this project will help to create a recreation-friendly section of the Yuba River, which in turn will increase the growing tourist economy in the region.

Distribution of Economic Benefits of the Project
This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes, the project will promote recreation to all visitors and community members in the Yuba Region. Anyone who recreates or visits the area, or who would value the opportunity to recreate or visit the area at some point in the future would benefit from the recreational aspects of the project.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes, the project will create a trail system and access points that will improve the quality of life for many generations and boost the local tourism economy.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will be implemented at multiple sites across the Yuba Region and be a key piece of a watershed wide network of trails and educational elements.

SYRCL-04: Yuba Salmon Education

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
No.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
No.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. This project will provide education to school age children about the salmon life cycle and salmon habitat. They will learn about ecosystem function and the importance of salmon as a keystone species. and will increase their understanding of and support for salmon restoration projects.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. This project will promulgate a better understanding of the habitat needed for salmon to complete their lifecycle.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. This project addresses the documented need for salmon restoration in the Yuba Region.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No.

Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes, this project will benefit school age children throughout the Yuba Region including those in Yuba County's disadvantaged communities.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes. The education provided in the Salmon programs are intended to be a long term investment in the communities understanding of salmon biology and riparian ecosystems and may increase the public's understanding of and support for future projects.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Yes. Providing education to community members including those in Yuba County's disadvantaged communities about a critical need in the watershed will produce benefits that may benefit multiple watersheds including support for future restoration projects.

SYRCL-05: Yuba Salmon Habitat Restoration

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
No.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. This project will contribute significantly to the natural habitat and ecosystems of the Yuba Region. This project would increase shade and recruitment of large woody debris and increase stream complexity, which would increase the sustainability of salmon and other aquatic species, which is of high economic importance to the region. The Yuba's spring run Chinook salmon was listed as threatened under the Endangered Species Act (ESA). Each year, the US Fish and Wildlife Service publishes a report summing all ESA-related expenditures by species/population, to the extent that those expenditures can be tied to a particular species/population. The 2102 ESA-related spending tied to Central Valley spring-run Chinook salmon totaled $ $5,872,013 million (US Fish and Wildlife Service. 2012.). This total does not include land acquisition costs. These expenditures, however, represent only part of the story. Government efforts to support species at risk also impose costs on society, primarily by restricting land use in protected areas (opportunity costs). Furthermore, other entities (e.g., non-profit organizations and private individuals) bear costs in implementing their own efforts to help support the species.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. This project will provide training to volunteers and community members on large scale river restoration. These volunteers will learn about the Yuba ecosystem as they participate in the project and will learn important restoration skills that can be used on other projects.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. This project will encourage new relationships between adjoining land owners, local, state, and federal governments. This project will increase compliance with the Endangered Species Act and will require all of the partners to work together collaboratively. Working in collaboration with others on this project has the potential to strengthen the relationships among stakeholders, which constitutes an investment in social capital and may well result in additional improvements in quality of life of participants. There are also several ways the project will produce tangible economic benefits through volunteer and training opportunities. For example, volunteer and training opportunities may increase

the public's understanding of and support for future projects. Furthermore, volunteering opportunities improve the well-being of people who choose to participate. These improvements may both result in water-supply or water-quality benefits directly, but they may better people's lives in other ways that have economic importance. Spending time outdoors may improve an individual's emotional and physical health, which constitutes an investment in human capital. Working with others in efforts such as trail building has the potential to strengthen the relationships among community members, which constitutes an investment in social capital. Both of these effects may contribute to an overall improvement in quality of life.

Evidence of Demand for the Project

This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. Riparian ecosystems are degraded in the Yuba Region. This project will restore this scarce resource in across the region. The degradation of the Yuba Region, specifically in regarded to salmon restoration, has been documented for many years by agencies including the USFWS, NOAA fisheries, CALFED. Many millions of dollars have been spent on studying and documenting the degradation and a recent Biological Opinion released by NOAA fisheries lays out reasons and solutions to this problem – including key elements of this project. Additionally, individuals derive value from increases in salmon and steelhead populations in two ways: some(e.g., recreational anglers and commercial fishermen) directly interact with salmon and steelhead populations and derive benefit by catching and consuming the fish, others (including some from the former group) derive value from the fish solely based on the salmon and steelhead's existence. Studies have shown that regardless of direct interaction with fish populations, many Californians hold a positive willingness to pay to ensure the long-term survival of salmon and steelhead (Pate and Loomis 1997). Several studies have attempted to estimate the passive use value of increases in salmon and steelhead populations among households in California and neighboring states. Passive use value, in this case, refers to the benefit individuals derive from knowing that healthy salmon and steelhead populations exist, regardless of their intent to directly interact with salmon and steelhead through fishing or some other means. In general, these studies have estimated households' average willingness to pay to implement policies that would increase salmon and steelhead populations. At the per fish level, these studies reveal that households are willing to pay only fractions of a penny for increases in salmon populations. When summed across a region, however, the total value Californians are willing to pay for increases in fish populations is considerable. Applying the results of two studies that have estimated willingness to pay values for increases in salmon and steelhead populations suggest that Californians, in total, would be willing to pay between $497(Olsen, Richards, and Scott 1991)and $4,351(Loomis 1996) per fish.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. While some remnant riparian ecosystems remain, enhancing and restoring near river areas will

create habitat where no habitat currently exists.
Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. This project will be the next step in restoring riparian habitat for fish and wildlife in the Yuba Region.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes. The beneficiaries of this project are the people of California who value the continued existence of aquatic wildlife and habitat, particularly critical habitat for Chinook salmon, and steelhead. It will particularly impact all persons living within the Sacramento River watershed and Sacramento-San Joaquin Bay Delta. Additionally, unlike many Californians who ascribe a monetary willingness to pay to protect salmon, even if they never intend to directly fish or watch them, many Native Americans recognize the importance of salmon outside the cultural framework and economic terms western society often imposes (Malloy1992). Accordingly, they reject the validity of applying a dollar value to fish that constitute a core element of their cultural and spiritual wellbeing. For this reason, we recognize the cultural significance that arises from the projects' improvements to salmonid populations and their habitat apart from the quantified passive-use value or other measures of economic benefits.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes. Many of the aspects of this project jumpstart natural processes which are meant to be self-sustaining for hundreds of years as they promote the natural function of the river channel.

Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Yes. This project will benefit all downstream areas of the Yuba Region and will support California's salmon populations throughout multiple watersheds in the entire Bay-Delta region and into the Pacific ocean.

SYRCL-06: Lower Yuba Environmental Flows

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
No.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. This project will contribute significantly to the natural habitat and ecosystems of the Yuba Region. This project would increase shade and recruitment of large woody debris and increase stream complexity, which would increase the sustainability of salmon and other aquatic species, which is of high economic importance to the region. The Yuba's spring run Chinook salmon was listed as threatened under the Endangered Species Act (ESA). Each year, the US Fish and Wildlife Service publishes a report summing all ESA-related expenditures by species/population, to the extent that those expenditures can be tied to a particular species/population. The 2102 ESA-related spending tied to Central Valley spring-run Chinook salmon totaled $ $5,872,013 million (US Fish and Wildlife Service. 2012.). This total does not include land acquisition costs. These expenditures, however, represent only part of the story. Government efforts to support species at risk also impose costs on society, primarily by restricting land use in protected areas (opportunity costs). Furthermore, other entities (e.g., non-profit organizations and private individuals) bear costs in implementing their own efforts to help support the species.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. This project will encourage new relationships between adjoining land owners, local, state, and federal governments. This project will increase compliance with the Endangered Species Act and will require all of the partners to work together collaboratively. Working in collaboration with others on this project has the potential to strengthen the relationships among stakeholders, which constitutes an investment in social capital and may well result in additional improvements in quality of life of participants. These improvements may both result in water-supply or water-quality benefits directly, but they may better people's lives in other ways that have economic importance

Evidence of Demand for the Project

This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. Riparian ecosystems are degraded in the Yuba Region. This project will promote ecological flows out of Englebright and benefit salmonids and other riparian and aquatic species. Additionally, individuals derive value from increases in salmon and steelhead populations in two ways: some(e.g., recreational anglers and commercial fishermen) directly interact with salmon and steelhead populations and derive benefit by catching and consuming the fish, others (including some from the former group) derive value from the fish solely based on the salmon and steelhead's existence. Studies have shown that regardless of direct interaction with fish populations, many Californians hold a positive willingness to pay to ensure the long-term survival of salmon and steelhead (Pate and Loomis 1997). Several studies have attempted to estimate the passive use value of increases in salmon and steelhead populations among households in California and neighboring states. Passive use value, in this case, refers to the benefit individuals derive from knowing that healthy salmon and steelhead populations exist, regardless of their intent to directly interact with salmon and steelhead through fishing or some other means. In general, these studies have estimated households' average willingness to pay to implement policies that would increase salmon and steelhead populations. At the per fish level, these studies reveal that households are willing to pay only fractions of a penny for increases in salmon populations. When summed across a region, however, the total value Californians are willing to pay for increases in fish populations is considerable. Applying the results of two studies that have estimated willingness to pay values for increases in salmon and steelhead populations suggest that Californians, in total, would be willing to pay between $497(Olsen, Richards, and Scott 1991)and $4,351(Loomis 1996) per fish.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. While some remnant riparian ecosystems remain, enhancing flows will create habitat where no habitat currently exists.
Is the project likely to result in a reduced risk of loss of life or damage to property?
No.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
No.
Is the project likely to result in new information or initial actions <u>required</u> to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. This project will be the contribute to restoring riparian habitat for fish and wildlife in the Yuba Region.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes. The beneficiaries of this project are the people of California who value the continued existence of aquatic wildlife and habitat, particularly critical habitat for Chinook salmon, and steelhead. It will particularly impact all persons living within the Sacramento River watershed and Sacramento-San Joaquin Bay Delta.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes. Many of the aspects of this project jumpstart natural processes which are meant to be self-sustaining for hundreds of years as they promote the natural function of the river channel.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Yes. This project will benefit all downstream areas of the Yuba Region and will support California's salmon populations throughout multiple watersheds in the entire Bay-Delta region and into the Pacific ocean.

SCRCD-01: Hydrilla Eradication and Canal Lining

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes, this project invests in physical capital by improving water delivery infrastructure to reduce water loss by 40 to 60 percent through lining an existing irrigation water conveyance canal with shotcrete.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes, the project invests in natural capital by effectively removing the infestation of an invasive species along and in an irrigation water conveyance system.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
N/A
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes, the project invests in social capital by increasing water supply reliability to agricultural producers in a disadvantaged community.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes, with the current drought, reliable water and efficient use of water is important. This project will decrease water loss within the conveyance system by 40 to 60 percent, creating a more reliable and efficient water supply to agricultural producers in a disadvantaged community.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes, the project will enhance features through the effectively removing the infestation of an invasive species. Removing the invasive species will not only make the water supply more reliable, it will allow

native species to grow and flourish.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes, the project will reduce the risk of loss or damage to property by increasing the reliability of the water supply to agricultural producers to prevent the loss or damage of crops from current and future drought conditions.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes, the project will reduce the risk of water delivery disruption by reducing water loss by 40 to 60 percent, making the water supply more reliable.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No, this will be the last phase of a project that has been on-going for ten years. It will complete the project and allow for the long-term benefits of a more reliable water supply to members of a disadvantaged community.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
Yes, the project will have benefits for a wide range of people including agricultural producers and the disadvantaged community of the Dobbins-Oregon House area of the foothills.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
Yes, the project is likely to have long-term benefits because the project will have a twenty or more year life span. This will lead to a consistent reliable water source as well as decrease maintenance costs because there will not be a constant need to clean out the conveyance canal of invasive species.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
Yes, the project will produce benefits across a large area because it will allow more water to stay in the system and travel downstream. It will also help agriculture in the Sierra Nevada foothills by improving the water supply reliability.

YC-01: Yuba County Airport Drainage Improvements

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. The project will construct a new drainage canal along the westerly side of the Yuba County airport.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. The new canal will be vegetated to help filter runoff from the airport properties and neighboring commercial sites.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. The project will provide public safety benefits in reduced flooding for the airport and commercial properties south of the airport.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The project will enable the County to comply more easily with Federal and State regulations that will lessen the impacts to the community at large.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. Flooding is a major issue for Yuba County residents due to levee failures and localized flooding. The project will help address the lack of flood protection for the Yuba County Airport and nearby properties.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No.

Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes. The project will provide enhanced flood control for the airport and nearby properties and lower water surface elevations for major storm events. This will reduce the flooding risks to property owners near the airport.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. Reducing flooding in the airport will reduce the risk of disrupting planes from landing which could be bringing in emergency equipment or supplies to the community.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will provide benefits to mostly the airport and nearby properties.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project will lower the water surface elevations during a 100-year storm which will remove the airport and many nearby properties from FEMA designated flood zones. This will result in substantially reduced flood insurance rates for the property owners that are removed from the flood zone. The reduced flood insurance rates will occur every year when property owners renew their insurance policies.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project is more concentrated at the airport and nearby properties to the west and south.

YC-02: Linda Drainage Improvements

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. The project will create a new drainage canal through the easterly portion of Linda. The existing stormwater flow entering the easterly side of Linda in the Linda Ditch will be diverted into a new canal that will be larger in size than the existing drainage channel. This will permanently increase the capacity to handle stormwater in Linda while reducing the impacts downstream.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Yes. The project will create a low-flow channel that includes low flow channel to filter water of pollutants, pools to reduce sediment loading during high flows, and benches for natural habitat for various species.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. The project will provide public safety benefits in reduced flooding for areas of Linda.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes. The project will enable the County to comply more easily with Federal and State regulations that will lessen the impacts to the community at large.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. Flooding is a major issue for Yuba County residents due to levee failures and localized flooding. The project will help address the lack of flood protection for areas within the Linda Community.

Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
Yes. The project will include a trail along one side of the new canal so the public will be able to walk or ride bicycles.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes. The project will provide enhanced flood control for the Linda Community and lower water surface elevations for major storm events. This will reduce the flooding risks to property owners near the existing canals in Linda.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. Lowering of water surface elevations will reduce the risk of roadways being flooded. Flooded roadway can disrupt critical services by emergency responders not being able to traversing through the flooded areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
No.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will provide benefits to a large area of Linda and reduce downstream water surface elevations.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The project will lower the water surface elevations during a 100-year storm which will remove many properties in Linda from FEMA designated flood zones. This will result in substantially reduced flood insurance rates for the property owners that are removed from the flood zone. The reduced flood insurance rates will occur every year when property owners renew their insurance policies.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project is part of the South Yuba Drainage Master Plan that involves the Linda Community. The

project is part of a larger flood control stratagem for reducing flood risks for the Linda and Olivehurst Communities. The project will benefit the Olivehurst drainage basin by decreasing the flows from the Linda area where the two basins join which will help reduce water surface elevations downstream.

YC-03: Olivehurst Drainage Study

Economic Feasibility Review Questions

Types of Economic Benefits of the Project
This series of questions is designed to identify the types of benefits arising from projects that may be economically meaningful, and potentially quantifiable using market or non-market techniques.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
Yes. The project will ultimately install storm drains, drain inlets, and surface water channelization (e.g. curb and gutter, dikes, or roadside ditches) in the Olivehurst Community to provide proper drainage. These improvements will be permanent assets to reduce the risks of localized flooding for the greater Olivehurst community with a population of approximately 13,650 residents. Olivehurst is also a disadvantage community in that the median household income is approximately 67% of the State median household income.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
Possible. Part of the overall project is to design a drainage system for Olivehurst which could include natural water courses (vegetated roadside ditches) that would provide habitat.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Yes. The project will provide public safety benefits in reducing flooding for areas in Olivehurst.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
Yes the project will the County and OPUD to comply more easily with Federal and State regulations that will lessen the impacts to the community at large.

Evidence of Demand for the Project
This series of questions is designed to clarify whether there is demand for the project's effects, which is necessary to demonstrate the benefits described above are likely to materialize in an economically meaningful way.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
Yes. The project will reduce operational costs for the Olivehurst Public Utility District (OPUD). It has been documented in a study prepared by OPUD that stormwater infiltrates into OPUD's sewer lines. This increases the amount of water entering into their wastewater treatment plant that needs to be processed during winter months. Removing the infiltrated stormwater from OPUD's facilities will lower

operational costs for OPUD and improve their financial resources to address other issues.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
No.
Is the project likely to result in a reduced risk of loss of life or damage to property?
Yes. The project will provide drainage infrastructure that will reduce flooding in many areas of Olivehurst during rain events due to the lack of adequate
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
Yes. Reducing infiltration into OPUD's sewer system will reduce the risk of overwhelming the wastewater treatment plant capacity
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
Yes. The first phase of the project is to prepare drainage studies for the Olivehurst community. This information will then be utilized in subsequent phases to construct drainage systems.

Distribution of Economic Benefits of the Project

This series of questions is designed to clarify how the benefits of the project are distributed across populations, geography, and time. Broader distribution is not necessarily better from an economic perspective, but these factors are important to consider.

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit residents of the greater Olivehurst community by either reducing flooding for their properties or by reduced rates assessed by OPUD due to reduced operational costs for OPUD, which will help this disadvantage community.
Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The benefits for property owners will be for many years in reduced flooding during the winter months.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
The project will benefit many areas of the greater Olivehurst Community. When the drainage system is designed and constructed there will be no downstream consequences.

YC-04: Olivehurst Pump Station

Olivehurst Pump Station Security Upgrade: Project Description

Currently, the site is vulnerable to theft and vandalism. The project would enhance security with the installation of a CCTV camera and a motion activated camera based intrusion alarm system. This pump station lifts water out of the Clark Lateral at the East end and into the Western Interceptor Canal. This pump station protects farmland, commercial, government, and residential properties including the Olivehurst / Arboga communities.

Is the project likely to make an investment in physical capital (e.g., will the project include permanent improvements to water delivery infrastructure, stormwater control infrastructure, or wastewater infrastructure?)
The Olivehurst Pump Station security improvements would invest in continued reliability of the existing infrastructure.
Is the project likely to make an investment in natural capital (e.g., will the project make ultimately self-sustaining improvements in natural habitats and ecosystems?)
The project is part of a larger regional internal drainage system that protects lands within the basin from flooding thereby sustaining the existing natural and ecosystems. The levee and internal drainage systems provide "safe haven" for wildlife species during high water within the river bottoms.
Is the project likely to make an investment in human capital (e.g., will the project provide training or education that significantly builds the knowledge and skills of people?)
Only minor impacts anticipated unless storm water can be utilized in non-potable residential and/ or farm applications.
Is the project likely to make an investment in social capital (e.g., will the project bring groups together to solve problems, encourage new relationships to develop, or help people better understand and comply with rules and regulations?)
The project may encourage community interaction between District staff and local law enforcement to help reduce crime.

Will the project produce effects or outcomes that address documented problems related to scarcity of a resource?
The Olivehurst Pump Station has been vandalized before. The CCTV and motion sensor activated cameras will enable local law enforcement to respond to reported crime activity to reduce the chances of vandalism of reoccurring. Yuba County is a self-insured, public agency which has to fund repairs from its general fund which reduces resources for all other programs.
Is the project likely to or create or enhance features (e.g., a trail or natural area) for which there are no nearby substitutes?
This project would enhance the security of a Giant Garder Snake Habitat Preservation area that was constructed with the Olivehurst Pump Station.
Is the project likely to result in a reduced risk of loss of life or damage to property?
The project reduces the risk of loss of life and damage to well over $1.1 Billion in assets within the RD784 Urban Levee footprint and Olivehurst Area.
Is the project likely to result in a reduced risk of disruption in critical services (e.g., water service, fire protection, emergency response, etc.)?
The enhancements could reduce the disruption to the delivery of water, fire, police, emergency medical services, multiple schools, a major highway, and several commercial and industrial areas.
Is the project likely to result in new information or initial actions required to complete a larger project that would yield more, longer-term, or more widespread benefits?
The Olivehurst Pump Station Security Enhancement project is part of a larger regional internal drainage system that will allow additional residential, commercial and industrial improvements which will allow job growth within the District that serves two disadvantaged communities.

Distribution of Economic Benefits of the Project

Is the project likely to produce benefits that are distributed widely across many people, or concentrated among a distinct group of people?
The project will benefit all of the land owners and residents within the geographical area regardless of income, race, ethnicity, cultural identification, gender, sexual orientation or other affiliation.

Is the project likely to produce benefits that will continue to accrue over a long period of time, or are the benefits likely to primarily occur over a limited time period or in the short term (e.g., does the project produce changes that are self-sustaining, or changes that are short-lived or need continued investment to maintain)?
The County of Yuba and RD784 will work Collaboratively to make a continued investment to maintain drainage systems within each of their respected boundaries.
Is the project likely to produce benefits that materialize across a wide geography, or concentrated in one location (e.g., are the benefits limited to the project site, do they have downstream consequences, do they reach across multiple watersheds?)
This project concentrates its benefits within the Olivehurst area but creates a “safe haven” for wildlife within nearby river bottoms in the event of high water and human populations in the event of flooding in adjacent cities and unincorporated areas.

How to Use These Questions in a Review

These questions do not yield a quantifiable score to assign to prospective projects. They do, however, provide IRWM Plan managers with information they may use to consider the economic feasibility in the project selection process, which is what DWR staff intended for Factor H to achieve. IRWM Plan managers can use the answers provided for each question to assess projects in several ways:

- Have the project proponents thought about the economic dimensions of their project's effects, and are they able to articulate them? (The more robust the answers to these questions, the more likely a project is likely to score well in the Implementation Grant process.)
- Does the project produce a wide range of potentially quantifiable or economically meaningful effects, or a more narrow or limited set of effects? (If the answer to many of these questions is "no" or blank, it's possible--though not certain--that an economic analysis of the project won't score well.

Yuba County IRWMP | 2015 UPDATE

APPENDIX 14-4
Completed Greenhouse Gas Inventories

Note: Not all projects were sufficiently developed to complete Greenhouse Gas Inventories.

BYLT-02: Yuba Watershed Forest and Fuels Project
Component 1 - CWPP Implementation
Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel[3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Masticator (equivalent to D 120 Excavator)*	1	100	800	3.38	2,704	0.010	28
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**2,704**		**28**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline[3]	Total CO_2 Equivalent Emissions (metric tons)
32	13	300	7.95	31005	23.8	**1302.7**	0.009	**11.74**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery				4.25	0	0.010	0
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 39.8 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 1

48 **Expected Start Date of Construction** n/a

49

50 **Estimated Project Useful life** 10 Years

51 **Average Annual Total GHG Emissions[7]** 3.9835888 **MT CO_2 equivalents**

52 [7] short-term construction emissions amortized over life of project

CAMPTONVILLE WATER SYSTEM IMPROVEMENT PROJECT
Inventory and Calculation of Greenhouse Gas Emissions

Line **Emissions from Construction Equipment**

1	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
2	Chainsaw			12	0.27	3	0.010	0
3	Chipper			4	5.49	22	0.010	0
4	Crane			8	8.18	65	0.010	1
5	Dump Truck			12	11.51	138	0.010	1
6	Equip Haul			6	7.55	45	0.010	0
7	Excavator			8	10.6	85	0.010	1
8	Loader			10	6.76	68	0.010	1
9	Material Haul			0	7.55	-	0.010	-
10	Spoils Haul			4	7.55	30	0.010	0
11	Skidder			6	10.76	65	0.010	1
12	Self Loader			6	7.55	45	0.010	0
13	Transit Mixer			12	11.51	138	0.010	1
14	Trencher			8	10.14	81	0.010	1
15	Well Drill			20	9.04	181	0.010	2
16	Well Pump			504	0.46	232	0.010	2
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**1,198**		**12**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	3	28	50	4200	23.8	**176.5**	0.009	**1.59**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	4	50	200	4.25	47	0.010	0.49
38	Spoils	2	50	100	4.25	24	0.010	0.24
39	TOTAL							**0.73**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	1	0.310	0.31

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 15.1 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.25

48 **Expected Start Date of Construction** June-16

49

50 **Estimated Project Useful life** 35 Years

51 **Average Annual Total GHG Emissions**[7] 0.43 **MT CO_2 equivalents**

52 [7] short-term construction emissions amortized over life of project

Well System Monitoring Rehabilitation Project - Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Drill Rig*	1	50	400	6.42	2,568	0.010	27
3	*Backhoe*	1	50	400	2.37	948	0.010	10
4	*Trencher*	1	20	160	6.58	1,053	0.010	11
5	*Excavator*	1	20	160	3.38	541	0.010	6
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**5,110**		**53**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

30	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
31								
32	4	50	100	20000	23.8	**840.3**	0.009	**7.57**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	15	100	1500	4.25	352.94	0.010	3.67
38	Spoils	5	50	250	4.25	58.82	0.010	0.61
39	TOTAL							**4.28**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 64.9 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 1

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40 Years

51 **Average Annual Total GHG Emissions[7]** 1.6 **MT CO_2 equivalents**

52 [7] short-term construction emissions amortized over life of project

Forbestown Ditch Improvement Project - Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
	Trackhoe - Excavator	1	240	1920	5.12	9,830	0.010	102
3	*Front End Loader*	1	240	1920	4.85	9,312	0.010	97
4	Pick-up Truck	1	240	1920	1.5	2,880	0.010	30
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**22,022**		**229**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
10	10	250	70	175000	23.8	**7352.9**	0.009	**66.25**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	90	150	13500	4.25	3176.470588	0.010	33.01
38	Spoils	0	0	0	4.25	0	0.010	0
39	TOTAL							**33.01**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed (portable generator)	4.5	0.310	1.395

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 329.5 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.5

48 **Expected Start Date of Construction** April-15

49

50 **Estimated Project Useful life** 100 Years

51 **Average Annual Total GHG Emissions[7]** 3.2949594 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Acquisition of Landside Urban Levee Maintenance Corridor- Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions from Construction Equipment							
1	**Type of Equipment**	**Maximum Number per Day**	**Total Operation Days**	**Total Operation Hours[1]**	**Fuel Consumption Per Hour[2]**	**Total Fuel Consumption (gal. diesel)**	**CO_2e/gal diesel [3]**	**Total CO_2 Equivalent Emissions (metric tons)**
2	*Cranes*	1	5	40	1.94	78	0.010	1
3	*Rough Terrain Forklifts*	2	120	1920	3.3	6,336	0.010	66
4	Rubber Tired Loaders	3	120	2880	2.44	7,027	0.010	73
5	Concrete Industrial Saws	1	10	80	0.75	60	0.010	1
6	Cement and Mortar Mixers	2	10	160	0.8	128	0.010	1
7	Other Construction Equipment	5	120	4800	0.6	2,880	0.010	30
8	Misc Portable Equipment	10	60	4800	3.15	3	0.010	0
9	Tampers / Rammers	2	30	480	0.49	235	0.010	2
10	Rollers	2	5	80	0.55	44	0.010	0
11	Paving Equipment	1	2	16	0.2	3	0.010	0
12	Excavators	3	60	1440	3.38	4,867	0.010	51
13	Graders	3	20	480	5.66	2,717	0.010	28
14	Crawler Tractors	3	20	480	5.54	2,659	0.010	28
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**27,038**		**281**
26	[1] An 8-hour work day is assumed.							
27	[2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors							
28	[3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2							
29								

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	5	150	120	90000	23.8	**3781.5**	0.009	**34.07**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
39	TOTAL							**17.60421346**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	2	0.310	0.62

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 333.3 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.5

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40

51 **Average Annual Total GHG Emissions[7]** 8.3313248 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Chestnut Pump Station Reconstruction- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Cranes*	1	25	200	1.94	388	0.010	4
3	*Rough Terrain Forklifts*	1	120	960	3.3	3,168	0.010	33
4	Rubber Tired Loaders	1	120	960	2.44	2,342	0.010	24
5	Concrete Industrial Saws	1	10	80	0.75	60	0.010	1
6	Cement and Mortar Mixers	1	10	80	0.8	64	0.010	1
7	Other Construction Equipment	1	60	480	0.6	288	0.010	3
8	Misc Portable Equipment	10	40	3200	3.15	3	0.010	0
9	Tampers / Rammers	2	20	320	0.49	157	0.010	2
10	Rollers	1	5	40	0.55	22	0.010	0
11	Paving Equipment	1	2	16	0.2	3	0.010	0
12	Excavators	1	30	240	3.38	811	0.010	8
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**7,307**		**76**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	4	150	120	72000	23.8	**3025.2**	0.009	**27.26**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
39	TOTAL							**17.60421346**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	4	0.310	1.24

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 122.0 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.5

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40

51 **Average Annual Total GHG Emissions[7]** 3.0507136 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Pump Station 5 (Avondale) Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions from Construction Equipment							
1	**Type of Equipment**	**Maximum Number per Day**	**Total Operation Days**	**Total Operation Hours[1]**	**Fuel Consumption Per Hour[2]**	**Total Fuel Consumption (gal. diesel)**	**CO_2e/gal diesel [3]**	**Total CO_2 Equivalent Emissions (metric tons)**
2	*Cranes*	1	25	200	1.94	388	0.010	4
3	*Rough Terrain Forklifts*	1	120	960	3.3	3,168	0.010	33
4	Rubber Tired Loaders	1	120	960	2.44	2,342	0.010	24
5	Concrete Industrial Saws	1	10	80	0.75	60	0.010	1
6	Cement and Mortar Mixers	1	10	80	0.8	64	0.010	1
7	Other Construction Equipment	1	60	480	0.6	288	0.010	3
8	Misc Portable Equipment	10	40	3200	3.15	3	0.010	0
9	Tampers / Rammers	2	20	320	0.49	157	0.010	2
10	Rollers	1	5	40	0.55	22	0.010	0
11	Paving Equipment	1	2	16	0.2	3	0.010	0
12	Excavators	1	30	240	3.38	811	0.010	8
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**7,307**		**76**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	4	150	120	72000	23.8	**3025.2**	0.009	**27.26**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
39	TOTAL							**17.60421346**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	4	0.310	1.24

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 122.0 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.5

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40 40

51 **Average Annual Total GHG Emissions**[7] 3.0507136 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Pump Station 1 Reconstruction- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Cranes*	1	5	40	1.94	78	0.010	1
3	*Rough Terrain Forklifts*	1	10	80	3.3	264	0.010	3
4	Rubber Tired Loaders	1	5	40	2.44	98	0.010	1
5	Concrete Industrial Saws	1	2	16	0.75	12	0.010	0
6	Cement and Mortar Mixers	1	1	8	0.8	6	0.010	0
7	Other Construction Equipment	1	5	40	0.6	24	0.010	0
8	Misc Portable Equipment	10	30	2400	3.15	3	0.010	0
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**485**		**5**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	2	30	120	7200	23.8	**302.5**	0.009	**2.73**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	5	120	600	4.25	141.1764706	0.010	1.467017788
38	Spoils	2	120	240	4.25	56.47058824	0.010	0.586807115
39	TOTAL							**2.053824904**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el/[MWh]^6	CO_2 e emissions
43	Electricity Needed	3	0.310	0.93

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 10.7 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.1

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40

51 **Average Annual Total GHG Emissions**[7] 0.268669 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Pump Station 2 Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Cranes*	1	5	40	1.94	78	0.010	1
3	*Rough Terrain Forklifts*	1	10	80	3.3	264	0.010	3
4	Rubber Tired Loaders	1	5	40	2.44	98	0.010	1
5	Concrete Industrial Saws	1	2	16	0.75	12	0.010	0
6	Cement and Mortar Mixers	1	1	8	0.8	6	0.010	0
7	Other Construction Equipment	1	5	40	0.6	24	0.010	0
8	Misc Portable Equipment	10	30	2400	3.15	3	0.010	0
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**485**		**5**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	2	30	120	7200	23.8	**302.5**	0.009	**2.73**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	5	120	600	4.25	141.1764706	0.010	1.467017788
38	Spoils	2	120	240	4.25	56.47058824	0.010	0.586807115
39	TOTAL							**2.053824904**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el/[MWh]^6	CO_2 e emissions
43	Electricity Needed	3	0.310	0.93

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 10.7 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.1

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40

51 **Average Annual Total GHG Emissions**[7] 0.268669 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Pump Station 10 Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Cranes*	2	20	320	1.94	621	0.010	6
3	*Rough Terrain Forklifts*	2	120	1920	3.3	6,336	0.010	66
4	Rubber Tired Loaders	3	120	2880	2.44	7,027	0.010	73
5	Concrete Industrial Saws	2	10	160	0.75	120	0.010	1
6	Cement and Mortar Mixers	1	10	80	0.8	64	0.010	1
7	Other Construction Equipment	5	120	4800	0.6	2,880	0.010	30
8	Misc Portable Equipment	10	60	4800	3.15	3	0.010	0
9	Tampers / Rammers	2	30	480	0.49	235	0.010	2
10	Rollers	2	5	80	0.55	44	0.010	0
11	Paving Equipment	2	4	64	0.2	13	0.010	0
12	Excavators	2	60	960	3.38	3,245	0.010	34
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**20,588**		**214**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	5	150	120	90000	23.8	**3781.5**	0.009	**34.07**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	30	120	3600	4.25	847.0588235	0.010	8.802106729
38	Spoils	30	120	3600	4.25	847.0588235	0.010	8.802106729
39	TOTAL							**17.60421346**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	4	0.310	1.24

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 266.9 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.5

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 40

51 **Average Annual Total GHG Emissions[7]** 6.6713193 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Daguerre Point Dam Fish Passage Improvement- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Excavator*	2	60	960	3.38	3,245	0.010	34
3	*Cranes*	1	30	240	2.3	552	0.010	6
4	Rubber Tired Dozers	1	30	240	5.93	1,423	0.010	15
5	Tractors/Loader	2	100	1600	1.41	2,256	0.010	23
6	Other Construct	2	100	1600	1.3	2,080	0.010	22
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**9,556**		**99**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	3	120	100	36000	23.8	**1512.6**	0.009	**13.63**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	20	100	2000	4.25	470.5882353	0.010	4.890059294
38	Spoils	30	100	3000	4.25	705.8823529	0.010	7.335088941
39	TOTAL							**12.22514824**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el[MWh]^6	CO_2 e emissions
43	Electricity Needed	100	0.310	31

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 156.2 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 100 Years

51 **Average Annual Total GHG Emissions**[7] 1.5615371 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Water Conservation Education- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2				0		-	0.010	-
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					-		-

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

30	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
31								
32	1	30	50	1500	23.8	**63.0**	0.009	**0.57**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery				4.25	0	0.010	0
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el/[MWh]^6	CO_2 e emissions
43	Electricity Needed	10	0.310	3.1

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 3.7 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 100 Years

51 **Average Annual Total GHG Emissions[7]** 0.0366786 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Yuba River Recreation Projects- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	Tampers/Rammers	1	30	240	0.2	48	0.010	0
3	Paving Equipment	1	30	240	0.2	48	0.010	0
4	Surfacing Equipmen	1	30	240	0.2	48	0.010	0
5	Scrapers	1	10	80	4.32	346	0.010	4
6	Off-Highway Trucks	3	30	720	5.71	4,111	0.010	43
7	Other Construction E	5	30	1200	0.6	720	0.010	7
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**5,321**		**55**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	4	60	100	24000	23.8	**1008.4**	0.009	**9.09**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	10	100	1000	4.25	235.2941176	0.010	2.4450296
38	Spoils				4.25	0	0.010	0
39	TOTAL							**2.4450296**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 66.8 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 100 Years

51 **Average Annual Total GHG Emissions[7]** 0.67 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Yuba Salmon Education- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel[3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2				0		-	0.010	-
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					-		-

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

30	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline[3]	Total CO_2 Equivalent Emissions (metric tons)
31								
32	1	90	50	4500	23.8	**189.1**	0.009	**1.70**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery				4.25	0	0.010	0
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 1.7 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 3 Years

51 **Average Annual Total GHG Emissions[7]** 0.5678571 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Yuba Salmon Habitat Restoration- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Tractors/Loaders/Backhoes*	2	30	480	1.41	677	0.010	7
3	Other Construction Equipment	4	30	960	0.46	442	0.010	5
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**1,118**		**12**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 **Emissions from Transportation of Construction Workforce**

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	5	60	50	15000	23.8	**630.3**	0.009	**5.68**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	5	50	250	4.25	58.82352941	0.010	0.61125741
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0.61125741**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	2	0.310	0.62

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 18.5 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 200 Years

51 **Average Annual Total GHG Emissions**[7] 0.0926577 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Lower Yuba Environmental Flows- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2				0		-	0.010	-
3				0		-	0.010	-
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					-		-

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

30	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
31								
32	2	10	50	1000	23.8	**42.0**	0.009	**0.38**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	0	0	0	4.25	0	0.010	0
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 0.4 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 200 Years

51 **Average Annual Total GHG Emissions[7]** 0.0018929 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Hydrilla Eradication and Canal Lining- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Cement Mixer*	1	12	96	0.8	58	0.010	1
3	*Backhoe*	1	12	96	4.63	444	0.010	5
4	*Skid Steer*	1	12	96	1.95	187	0.010	2
5	*Dump Truck*	1	12	96	0.35	34	0.010	0
6	*Misc. Portable Equipment*	1	12	96	3.15	302	0.010	3
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0			0.010	
25	TOTAL					**1,025**		**11**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

30 Emissions from Transportation of Construction Workforce

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	10	12	156	3744	23.8	**157.3**	0.009	**1.42**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	5	55	275	4.25	64.70588235	0.010	0.672383153
38	Spoils				4.25	0	0.010	0
39	TOTAL							**0.672383153**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 13.1 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction**

48 **Expected Start Date of Construction** Winter 2015

49

50 **Estimated Project Useful life** 20 Years

51 **Average Annual Total GHG Emissions[7]** 0.6572641 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Yuba County Airport Drainage Improvements - Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	Pavers	1	15	120	8.84	1,061	0.010	11
3	Plate compactors	2	80	1280	0.2	256	0.010	3
4	Rollers	2	80	1280	2.64	3,379	0.010	35
5	Rollers	2	60	960	4.94	4,742	0.010	49
6	Tractor/Backhoes	2	90	1440	2.97	4,277	0.010	44
7	Tractor/Backhoes	2	50	800	7.78	6,224	0.010	65
8	Excavators	1	25	200	5.12	1,024	0.010	11
9	Paving Equipment	1	15	120	4.62	554	0.010	6
10	Trenchers	1	75	600	2.98	1,788	0.010	19
11	Other consturction equipment	5	90	3600	3.7	13,320	0.010	138
12						-	0.010	-
13						-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**36,626**		**381**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	8	90	100	72000	23.8	**3025.2**	0.009	**27.26**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	200	30	6000	4.25	1411.764706	0.010	14.67017788
38	Spoils	300	20	6000	4.25	1411.764706	0.010	14.67017788
39	TOTAL							**29.34035576**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 437.2 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 1

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 50 Years

51 **Average Annual Total GHG Emissions**[7] 8.74 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Linda Drainage Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Line	Emissions from Construction Equipment							
1	**Type of Equipment**	**Maximum Number per Day**	**Total Operation Days**	**Total Operation Hours[1]**	**Fuel Consumption Per Hour[2]**	**Total Fuel Consumption (gal. diesel)**	**CO_2e/gal diesel [3]**	**Total CO_2 Equivalent Emissions (metric tons)**
2	Pavers	1	10	80	8.84	707	0.010	7
3	Plate compactors	2	30	480	0.2	96	0.010	1
4	Rollers	2	30	480	2.64	1,267	0.010	13
5	Rollers	4	60	1920	4.94	9,485	0.010	99
6	Tractor/Backhoes	2	60	960	2.97	2,851	0.010	30
7	Scrapers	3	30	720	9.52	6,854	0.010	71
8	Excavators	2	60	960	5.12	4,915	0.010	51
9	Graders	2	30	480	7.81	3,749	0.010	39
10	Tractor/Backhoes	2	100	1600	7.78	12,448	0.010	129
11	Paving Equipment	1	20	160	4.62	739	0.010	8
12	Trenchers	1	40	320	2.98	954	0.010	10
13	Other consturction equipment	5	90	3600	3.7	13,320	0.010	138
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**57,386**		**596**
26	[1] An 8-hour work day is assumed.							
27	[2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors							
28	[3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2							
29								
30	**Emissions from Transportation of Construction Workforce**							
31	**Average Number of Workers per Day**	**Total Number of Workdays**	**Average Distance Traveled (round trip)**	**Total Miles Traveled**	**Average Passenger Vehicle Fuel Efficiency[4]**	**Total Fuel Consumption (gal. gasoline)**	**CO_2e/gal Gasoline [3]**	**Total CO_2 Equivalent Emissions (metric tons)**
32	10	180	100	180000	23.8	**7563.0**	0.009	**68.14**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	300	30	9000	4.25	2117.647059	0.010	22.00526682
38	Spoils	500	20	10000	4.25	2352.941176	0.010	24.45029647
39	TOTAL							**46.45556329**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 710.9 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 1

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 50 Years

51 **Average Annual Total GHG Emissions**[7] 14.218275 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Olivehurst Drainage Improvements- Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	Pavers	1	100	800	8.84	7,072	0.010	73
3	Plate compactors	2	300	4800	0.2	960	0.010	10
4	Rollers	2	300	4800	2.64	12,672	0.010	132
5	Rollers	4	100	3200	4.94	15,808	0.010	164
6	Tractor/Backhoes	2	200	3200	2.97	9,504	0.010	99
7	Tractor/Backhoes	2	200	3200	7.78	24,896	0.010	259
8	Excavators	2	150	2400	5.12	12,288	0.010	128
9	Paving Equipment	1	100	800	4.62	3,696	0.010	38
10	Trenchers	1	250	2000	2.98	5,960	0.010	62
11	Other consturction equipment	5	400	16000	3.7	59,200	0.010	615
12						-	0.010	-
13						-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**152,056**		**1,580**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

30	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
31								
32	10	500	100	500000	23.8	**21008.4**	0.009	**189.29**

[4] United States Environmental Protection Agency. 2013. Light-Duty Automotive
33 Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	600	30	18000	4.25	4235.294118	0.010	44.01053365
38	Spoils	1000	20	20000	4.25	4705.882353	0.010	48.90059294
39	TOTAL							**92.91112659**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_e/[MWh]^6	CO_2 e emissions
43	Electricity Needed	0	0.310	0

44 [6] eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 1,862.3 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 6

48 **Expected Start Date of Construction**

49

50 **Estimated Project Useful life** 50 Years

51 **Average Annual Total GHG Emissions**[7] 37.25 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Olivehurst Pump Station Inventory and Calculation of Greenhouse Gas Emissions

Emissions from Construction Equipment

Line	Type of Equipment	Maximum Number per Day	Total Operation Days	Total Operation Hours[1]	Fuel Consumption Per Hour[2]	Total Fuel Consumption (gal. diesel)	CO_2e/gal diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
1								
2	*Other Construction Equipment*	2	2	32	5.49	176	0.010	2
3	*Misc. Portable Equipment*	5	3	120	3.15	378	0.010	4
4				0		-	0.010	-
5				0		-	0.010	-
6				0		-	0.010	-
7				0		-	0.010	-
8				0		-	0.010	-
9				0		-	0.010	-
10				0		-	0.010	-
11				0		-	0.010	-
12				0		-	0.010	-
13				0		-	0.010	-
14				0		-	0.010	-
15				0		-	0.010	-
16				0		-	0.010	-
17				0		-	0.010	-
18				0		-	0.010	-
19				0		-	0.010	-
20				0		-	0.010	-
21				0		-	0.010	-
22				0		-	0.010	-
23				0		-	0.010	-
24				0		-	0.010	-
25	TOTAL					**554**		**6**

26 [1] An 8-hour work day is assumed.

27 [2] California Air Resource Board Offroad 2007 Emissions Inventory fuel consumption factors

28 [3] World Resources Institute-Mobile combustion CO_2 emissions tool, June 2003 Version 1.2

29

Emissions from Transportation of Construction Workforce

31	Average Number of Workers per Day	Total Number of Workdays	Average Distance Traveled (round trip)	Total Miles Traveled	Average Passenger Vehicle Fuel Efficiency[4]	Total Fuel Consumption (gal. gasoline)	CO_2e/gal Gasoline [3]	Total CO_2 Equivalent Emissions (metric tons)
32	1	4	120	480	23.8	**20.2**	0.009	**0.18**

33 [4] United States Environmental Protection Agency. 2013. Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012. [EPA-420-R-13-001]

34

35 **Emissions from Transportation of Construction Materials**

36	Trip Type	Total Number of Trips	Average Trip Distance	Total Miles Traveled	Average Semi-Truck Fuel [Efficiency]^5	Total Fuel Consumption (gal. diesel)	CO_2e/gal Diesel [3]	Total CO_2 Equivalent Emissions (metric tons)
37	Delivery	2	120	240	4.25	56.47058824	0.010	0.586807115
38	Spoils	0	0	0	4.25	0	0.010	0
39	TOTAL							**0.586807115**

40 [5] The National Academies, Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles, 2010.

41 **Construction Electricity Emissions**

42		MWh of electricity	mtCO2_el/[MWh]^6	CO_2 e emissions
43	Electricity Needed	1	0.310	0.31

44 ^6 eGRID2010 Version 1.0, February 2011 (Year 2007 data) *CAMX-WECC sub-region* .

45

46 **Total Construction Activity Emissions** 6.8 (from lines 25, 32, 39, and 43)

47 **Total Years of Construction** 0.01

48 **Expected Start Date of Construction** TBD

49

50 **Estimated Project Useful life** 50 Years

51 **Average Annual Total GHG Emissions[7]** 0.1366404 **MT CO_2 equivalents**

52 [7]short-term construction emissions amortized over life of project

Yuba County IRWMP | 2015 UPDATE

APPENDIX 16-1

Memorandum of Understanding

Memorandum of Understanding
Yuba County IRWM Regional Entity

RECITALS

WHEREAS, the Integrated Regional Water Management Planning Act (Water Code Sections 10530 to 10547) authorizes three or more local agencies, at least two of which have statutory authority over water supply or water management, to enter into a memorandum of understanding ("MOU") or other legal agreement to establish a Regional Water Management Group ("RWMG"); and

WHEREAS, the parties to this Memorandum of Understanding seek to provide stability and consistency in the planning, management, and coordination of water resources within the watershed of the Yuba Region pursuant to the Integrated Regional Water Management Planning Act (California Water Code section 10530 et seq.); and

WHEREAS, the parties to this MOU desire to develop and adopt an Integrated Regional Water Management ("IRWM") Plan and to increase coordination and collaboration among stakeholders in the Yuba Region ("Region ") which will be closely coordinated with other planning and land and water resource management interests and agencies; and

WHEREAS, this Memorandum of Understanding reflects the further development of the Plan by establishing the basis for governance and consensus; and

WHEREAS, the parties to this Memorandum of Understanding will identify projects, establish the priority of such projects and seek funding to implement such water-related projects in the Yuba Region as part of the development of an Yuba Regional Water Management Plan; and

WHEREAS, the parties to this Memorandum of Understanding are not limited in seeking other funding for water-related projects, nor does this Memorandum of Understanding impose legally binding requirements on the parties;

WHEREAS, the parties to this MOU seek to ensure that IRWM funding and any other future funding is expended in the best way possible to enhance the many beneficial uses of water and other resources in the Region for the benefit of the Region itself and for downstream water users.

NOW, THEREFORE, in consideration of the above premises and of the mutual promises and agreements herein contained, the parties to this MOU agree as set forth below to work together in the RWMG for the Yuba Region to carry out the purposes of this MOU.

Article 1 – Definitions

Section 1.01. Definitions. Unless the context otherwise requires, the words and terms defined in this Article I shall, for the purpose hereof, have the meanings herein specified.

"Consensus" means approval of the Members to move forward with a particular action. "Consensus" does not necessarily mean that all Members affirmatively support an action but rather that no Member has opposed the action. A Member may verbally note disagreement with an action but still allow consensus on an action without the Member's support if the action does not affect the Member or compromise the Member's interests.

"IRWM Planning Act" or "Planning Act" means the Integrated Regional Water Management Planning Act, Part 2.2 of Division 6 of the California Water Code commencing with section 10530.

"IRWM Plan" or "Plan" has the meaning set forth in Water Code section 10534, which is a comprehensive plan for a defined geographic area, the specific development, content and adoption of which shall satisfy requirements of the Planning Act.

"Regional Water Management Group" has the meaning set forth in California Water Code section 10539, which is a group of three or more local agencies, at least two of which have statutory authority over water supply or water management, as well as those other persons who may be necessary for the development and implementation of a Plan.

"Member of the Yuba Regional Water Management Group" or "Member" means an entity identified in California Water Code §10541 (g) that is based in the Region, has members or chapters in the Region, or has water management authority in the Region, and is a signatory to this Memorandum of Understanding. "Member of the Regional Water Management Group" or "Member" means a local agency, tribe, or non-governmental organization that has become a party to this MOU. Federal and State agencies are not Members of the Regional Water Management Group, but such agencies may be parties to this MOU and may designate liaisons to the RWMG as provided herein. Member Representative refers to the person or persons representing the Member at meetings of the Group.

"Cooperating Entity" means a business, organization, individual or agency that is not a Member of the Yuba Regional Water Management Group but is selected to carry out a specific project.

"Disadvantaged Community" or "DAC" means any community within the Region qualifying as a Disadvantaged Community under California law using then-current U.S. Census data.

"Fiscal Year" means the period from July 1st to and including the following June 30th.

"MOU" means this Memorandum of Understanding, as existing or as subsequently amended.

Article 2 – Purpose and Organization

Section 2.01 Purpose. This MOU is entered into in accordance with the Planning Act for the purpose of forming the Group that will (1) develop, implement and periodically update the Plan, and (2) coordinate planning and actions with connected Regions. The Group shall work to:

(a) Support regional objectives and the objectives of the California Water Plan.
(b) Promote communication and cooperation within the Region in support of these objectives.
(c) Facilitate investment in projects that can minimize costs and maximize regional benefits through cooperation between Members and Cooperating Entities, through economies of scale, through projects with multiple resource benefits, or through DAC projects.
(d) Endeavor to assure an element of geographic fairness in the ranking of projects.

This MOU does not impose legally binding requirements on its Members and is not an enforceable contract or agreement. It is a statement of principles for how the Group will conduct business.

Section 2.02 Term of MOU. This MOU shall replace the MOU dated September 1, 2014. This MOU shall continue in effect until terminated by all then-current Members. Inclusion of additional Members, and/or withdrawal of Members shall not terminate this MOU.

Section 2.03 Member Representatives. Each member shall designate a Member Representative to the Group. More than one Member Representative may be appointed, but each Member shall have only one vote. A Member may appoint someone as their Member Representative notwithstanding the fact that such person is also the Member Representative for another Member. In such instances, such person shall have one vote on behalf of each Member represented.

Section 2.04 Decision Making. Decision making by the Group is based upon consensus of those Member Representatives present in person, by phone, or electronically. Where action by the governing body of one or more Members whose representative is present is required, or desirable, the matter shall not be considered approved by the Group until a decision by those governing bodies has been obtained. A Member's governing body may, in its discretion, elect to note disagreement with but "not oppose" an action, rather than disapprove it, thereby allowing the action to move forward without its endorsement.

2.04.1 Less than 100% Consensus Decision Making

The RWMG shall not limit itself to strict consensus if 100% agreement among all participants cannot be reached after all interests and options have been thoroughly identified, explored, discussed and considered. Less-than-consensus decision-making shall not be undertaken lightly. If, after full exploration and discussion, the RWMG cannot come to 100% agreement, then the group will invoke a 75% super-majority vote.

(a)Any RWMG member may call for a vote after the issue has been fully vetted by the group. Voting will be available only to those RWMG members who have attended two out of the previous three RWMG meetings. Each member group will be entitled to a single vote. The 75% vote will be tallied based on the members who are present at the meeting. If a 75% supermajority vote is called for then the vote will be held at the subsequent meeting and all relevant materials will be distributed to the full RWMG in advance of that next meeting. This process may be repeated until consensus is reached or the item/issue under discussion is withdrawn from consideration.

Definition of Active Participation by RWMG Members

Active participation means regular attendance at RWMG meetings and reviewing planning and other written documents before discussions or decisions will be made. It is understood that occasionally RWMG members may need to miss scheduled meetings. If there is a question as to whether a RWMG member should be considered "active" for purposes of decision-making, sign-in sheets from previous meetings shall be used to make that determination.

Section 2.05 XX Committee. The XX Committee, along with such staff as the Group may employ, shall be responsible for the on-going administrative work of the Group. The XX Committee shall consist of six (6) Members who shall serve a term of two years. Three Members of the first XX Committee shall serve a term of one year, so that there will be an orderly transition of administrative business. Members of the XX Committee shall serve on a rotating basis so that every Member has the opportunity to serve, notwithstanding that a Member may decline to serve. Members may serve consecutive terms with approval of the Group.

The Chair or Vice-Chair of the XX Committee shall act as Chair of the Group meetings.

Section 2.06 Other Working Committees. Other working committees shall be appointed by the Group or by the Admin Committee as needed.

Section 2.07 Quorum. The presence of fifty percent of the Members of the Group or the working committees shall constitute a quorum for the transaction of business, except that less than a quorum may adjourn a meeting from time to time.

Section 2.08 Meetings. Members shall meet at least quarterly in a regularly scheduled meeting. Location of meetings shall rotate throughout the planning region Meetings shall be chaired by the Chair or Vice-Chair of the XX Committee.

- ☐ The XX Committee shall meet at least monthly at a location of its own choosing.
- ☐ Other working committees shall meet as needed at a location of their own choosing and shall select their own chair.
- ☐ Attendance at all meetings may be in person or by electronic connection.
- ☐ All meetings are open to the public and shall be publicly noticed.

Section 2.09 Minutes. The XX Committee shall appoint a Secretary to be responsible for preparing an agenda, maintaining a record of the activities of the Group and the XX Committee, and performing such other duties as necessary. The Secretary is responsible for noticing all Group meetings, XX Committee meetings and working committee meetings. Minutes of all meetings, including those from the XX Committee meetings, and any special reports or documents, shall be distributed to the Group.

Section 2.10 Organization, Bylaws and Policies and Procedures. The Group may incorporate as a nonprofit public benefit corporation. The Group may establish Bylaws and Policies and Procedures as necessary.

Section 2.11 Fiscal Agent. The XX Committee, with approval by the Group, is responsible for establishing a Fiscal Agent with appropriate qualifications to receive, disburse and account for funds related to this MOU. Until such time as this Fiscal Agent is established, XXX shall remain the Fiscal Agent for the Group. Funding received by the Fiscal Agent to carry out projects shall be disbursed to Members or to Cooperating Entities only after the Fiscal Agent enters a funding agreement with the Member or Cooperating Entity as may be appropriate or required. The Fiscal Agent shall be responsible for any necessary financial reporting, including reports needed to comply with the terms of any grant agreement. The Fiscal Agent shall report annually to the Group and monthly to the XX Committee. All fiscal reports shall be distributed to the Group.

Section 2.12 Staff. The Group may employ professional staff or consultants as needed and within prudent fiscal constraints. The Group may accept staffing funded by members of the Group or others.

Section 2.13 Annual Budget. The XX Committee shall develop an annual budget for each fiscal year for administrative expenses. The budget shall be approved by the Group. The budget shall be based upon funds available or pledged as of May 31st of the previous year. The budget may be modified during the fiscal year as necessary with approval by the Group. Each annual budget shall be approved by the group.

Section 2.14 Annual Operational and Fiscal Report. The XX Committee is responsible for preparing an annual operation and fiscal report for presentation to the Group at the end of each fiscal year. The annual report of the Fiscal Agent is part of this report.

SIGNATURE PAGE

Date: _____

_____
Organization

_____
Name and position (print)

_____
Name (signature)

Primary Representative:

Email: _____

Telephone: _____

Address: _____

Alternative Representative:

1 **Email:** _____

Telephone: _____

Address: _____

Yuba County IRWMP | 2015 UPDATE

APPENDIX 16-2
Notices of Intent

Note to reviewers: Other Notices of Intent will be added during the public review and Plan adoption process.

Advertising Receipt

Appeal-Democrat
1530 Ellis Lake Drive
Marysville, CA 95901

Phone: (530) 749-4700
Fax: (530) 749-8393

Yuba Integrated Regional Water
AR #38888 Legal
1545 Shirland Tract
AUBURN , CA 95603

Acct #: 09130076
Ad #: 00162161
Phone: (530) 823-1310
Date: 11/04/2013
Ad taker: krs **Salesperson:**

Classification 1000

Description	Start	Stop	Insertions	Total
Yuba Integrated Regional Water	11/11/2013	11/18/2013	2	649.16

APPEAL DEMOCRAT
1530 ELLIS LAKE DR
MARYSVILLE, CA 95901
(530) 749-4707

Phone Order

ID: 001
Merchant ID: 000012867580
Bank ID: 1340

11/13/13 15:20:21
Batch#: 317001
Retrieval Ref #: 72706091

VISA Entry Method: Manual
XXXXXXXXXXXX9217
Appr Code: 427854 Inv #: 000009
CVV2 Code: M

Total: $ 649.16

Customer Copy

PAID
NOV 13 2013
visa-KS

Ad Text:

PUBLIC MEETING NOTICE

NOTICE OF INTENTION TO PREPARE AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)

In accordance with Section 10541 of the Water Code and Section 6066 of the Government Code, this notice serves to inform the public that a meeting will be held to inform the public about the preparation of the Yuba County Integrated Regional Water Management Plan (YCIRWMP). This meeting will be held on Thursday, November 21st 2013, from 4:00 – 6:00 PM, at the Yuba County Government Center, Marysville Room,

Payment Reference:

Burdick, Katie CC NO. 9217 08/16 -649.16 Auth:

Total:	649.16
Tax:	0.00
Net:	649.16
Prepaid:	-649.16
Total Due	0.00

16524624

PUBLIC MEETING NOTICE

16524624

PUBLIC MEETING NOTICE
NOTICE OF INTENTIONTO PREPARE AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)

In accordance with Section 10541 of the Water Code and Section 6066 of the Government Code, this notice serves to inform the public that a meeting will be held to inform the public about the preparation of the Yuba County Integrated Regional Water Management Plan (YCIRWMP). This meeting will be held on Thursday, November 21st2013, from 4:00 - 6:00 PM, at the Yuba County Government Center, Marysville Room, 915 8th Street, in Marysville, CA. The meeting will be conducted as an open house.

PROJECT INFORMATION: The project consists of preparation of an Integrated Regional Water Management Plan (IRWMP), as described in the November 2012 Proposition 84-Integrated Regional Water Management Program Guidelines which were prepared by the State Department of Water Resources (DWR) under the provisions of the Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006. The Yuba County IRWM region (YCIRWM) was approved by DWR in 2009 as part of the Regional Acceptance Process (RAP). The YCIRWM region overlaps with the Cosumnes American Bear Yuba (CABY) IRWM region within the Yuba Watershed only. As a result, this notice is being posted in a variety of local newspapers across both the Yuba and CABY regions to ensure that the public within the both regionsare aware of the preparation of the YCIRWMP.

The IRWM Program is designed to encourage development of integrated regional strategies for management of water resources and to provide funding forimplementationprojects advanced by local stakeholders. The IRWMP document will be prepared over the next year and is scheduled for completion and adoption in the summer of 2014. During preparation of the Plan there will be two additional public meetings to inform the public and receive feedback and input to the Plan contents. The Plan will describe existing conditions in the watershed, identify issues and conflicts associated with water management (water quality, water quantity and environmental quality), present goals and objectives for responding to identified issues and present projects developed by local stakeholders (public agencies, non-profit organizations and Tribal entities) which seek to address identified issues. The Plan will also include a focus on Disadvantaged Communities located in the region to assist in meeting their critical water quality and water supply needs, as well as consideration of projects that support environmental quality in the watershed.

The workshop will provide materials which describe the Plan, the Plan development process and the possible outcomes of Plan implementation to interested parties. There will be opportunities to ask questions and provide input.

For more information please contact:
Kelsey Roeder
YCIRWMP Public Involvement Assistant Coordinator
(530) 906-4227
admin@yubairwmp.org

PUBLISHED IN AUBURN JOURNAL: OCTOBER 31 AND NOVEMBER 6, 2013

The above space is reserved for Court/County Filed Date Stamp

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Placer

I am a citizen of the United States and employed by a publication in the County aforesaid. I am over the age of eighteen years, and not a party to the mentioned matter. I am the principal clerk of **The Auburn Journal**, a newspaper of general circulation, in the **City of Auburn**, which is printed and published in the **County of Placer**. This newspaper has been judged a newspaper of general circulation by the Superior Court of the State of California, in and for the **County of Placer**, on the date of May 26, 1952 (Case Number 17407). The notice, of which the attached is a printed copy (set in type not smaller than nonpareil) has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

OCTOBER 31

NOVEMBER 6

I certify, under penalty of perjury, that the foregoing is true and correct.

Terry Clark

Dated in Auburn, California

NOVEMBER 6, 2013

PROOF OF PUBLICATION
THE AUBURN JOURNAL
1030 High Street
Auburn, CA 95604-5910

NEVADA COUNTY PUBLISHING COMPANY
Grass Valley, CA

AFFIDAVIT OF PUBLICATION
The Union

Burdick and Company
Attn: Kelsey Roeder
1545 Shirland Tract
Auburn, CA 95603

REFERENCE: Public Meeting Notice, 11/21/13
Integrated Regional Water Mgmt.
Ad #9669422

County of Nevada, State of Calif. The undersigned, Betsy Hunter, being the principal clerk of the Nevada County Publishing Co. declares that the Nevada County Publishing Co. now is, and during all times herein named, was a corporation duly organized and existing under the laws of the State of California, and now is, and during all times herein named was the printer of THE UNION, a newspaper of general circulation, as defined by Section 6000 of the Government Code of the State of California, printed and published daily (Sundays excepted) in the City of Grass Valley, County of Nevada, State of California, and that affiant is the principal clerk of said Nevada County Publishing Co.

That the printed advertisement hereto annexed was published in the said UNION, in the issues of the following named dates:

October 31 & November 7, 2013

I certify, under penalty of perjury, the foregoing is true and correct.

Signed: _____
Legals Advertising Clerk

PUBLIC MEETING NOTICE

NOTICE OF INTENTION TO PREPARE AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)

In accordance with Section 10541 of the Water Code and Section 6066 of the Government Code, this notice serves to inform the public that a meeting will be held to inform the public about the preparation of the Yuba County Integrated Regional Water Management Plan (YCIRWMP). This meeting will be held on Thursday, November 21st 2013, from 4:00 - 6:00 PM, at the Yuba County Government Center, Marysville Room, 915 8th Street, in Marysville, CA. The meeting will be conducted as an open house.

PROJECT INFORMATION: The project consists of preparation of an Integrated Regional Water Management Plan (IRWMP), as described in the November 2012 Proposition 84-Integrated Regional Water Management Program Guidelines which were prepared by the State Department of Water Resources (DWR) under the provisions of the Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006. The Yuba County IRWM region (YCIRWM) was approved by DWR in 2009 as part of the Regional Acceptance Process (RAP). The YCIRWM region overlaps with the Cosumnes American Bear Yuba (CABY) IRWM region within the Yuba Watershed only. As a result, this notice is being posted in a variety of local newspapers across both the Yuba and CABY regions to ensure that the public within the both regions are aware of the preparation of the YCIRWMP.

The IRWM Program is designed to encourage development of integrated regional strategies for management of water resources and to provide funding for implementation projects advanced by local stakeholders. The IRWMP document will be prepared over the next year and is scheduled for completion and adoption in the summer of 2014. During preparation of the Plan there will be two additional public meetings to inform the public and receive feedback and input to the Plan contents. The Plan will describe existing conditions in the watershed, identify issues and conflicts associated with water management (water quality, water quantity and environmental quality), present goals and objectives for responding to identified issues and present projects developed by local stakeholders (public agencies, non-profit organizations and Tribal entities) which seek to address identified issues. The Plan will also include a focus on Disadvantaged Communities located in the region to assist in meeting their critical water quality and water supply needs, as well as consideration of projects that support environmental quality in the watershed.

The workshop will provide materials which describe the Plan, the Plan development process and the possible outcomes of Plan implementation to interested parties. There will be opportunities to ask questions and provide input.

For more information please contact:

Kelsey Roeder
YCIRWMP Public Involvement
Assistant Coordinator
(530) 906-4227
admin@yubairwmp.org

Publish: 10/31/13 & 11/07/13 **Ad #9669422**

Mountain Democrat

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of El Dorado

I am a citizen of the United States and a resident of the County aforesaid; I'm over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am principal clerk of the printer at the Mountain Democrat, 2889 Ray Lawyer Drive, a newspaper of general circulation, printed and published Monday, Wednesday, and Friday, in the City of Placerville, County of El Dorado, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court to the County of El Dorado, State of California, under the date of March 7, 1952, Case Number 7258; that the notice, of which the annexed is a printed copy (set in type no smaller than non-pareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

11/01, 11/08

All in the year 2013.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Placerville, California, this **8th** day of **NOVEMBER, 2013**

Kristen Mattos
Signature

Proof of Publication of
PUBLIC NOTICE

NOTICE OF INTENTION TO PREPARE
AN INTEGRATED REGIONAL WATER
MANAGEMENT PLAN (IRWMP)

In accordance with Section 10541 of the Water Code and Section 6066 of the Government Code, this notice serves to inform the public that a meeting will be held to inform the public about the preparation of the Yuba County Integrated Regional Water Management Plan (YCIRWMP). This meeting will be held on Thursday, November 21st 2013, from 4:00 – 6:00 PM, at the Yuba County Government Center, Marysville Room, 915 8th Street, in Marysville, CA. The meeting will be conducted as an open house.

PROJECT INFORMATION: The project consists of preparation of an Integrated Regional Water Management Plan (IRWMP), as described in the November 2012 Proposition 84-Integrated Regional Water Management Program Guidelines which were prepared by the State Department of Water Resources (DWR) under the provisions of the Proposition 84 Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006. The Yuba County IRWM region (YCIRWM) was approved by DWR in 2009 as part of the Regional Acceptance Process (RAP). The YCIRWM region overlaps with the Cosumnes American Bear Yuba (CABY) IRWM region within the Yuba Watershed only. As a result, this notice is being posted in a variety of local newspapers across both the Yuba and CABY regions to ensure that the public within the both regions are aware of the preparation of the YCIRWMP.

The IRWM Program is designed to encourage development of integrated regional strategies for management of water resources and to provide funding for implementation projects advanced by local stakeholders. The IRWMP document will be prepared over the next year and is scheduled for completion and adoption in the summer of 2014. During preparation of the Plan there will be two additional public meetings to inform the public and receive feedback and input to the Plan contents. The Plan will describe existing conditions in the watershed, identify issues and conflicts associated with water management (water quality, water quantity and environmental quality), present goals and objectives for responding to identified issues and present projects developed by local stakeholders (public agencies, non-profit organizations and Tribal entities) which seek to address identified issues. The Plan will also include a focus on Disadvantaged Communities located in the region to assist in meeting their critical water quality and water supply needs, as well as consideration of projects that support environmental quality in the watershed.

The workshop will provide materials which describe the Plan, the Plan development process and the possible outcomes of Plan implementation to interested parties. There will be opportunities to ask questions and provide input.

For more information please contact:
Kelsey Roeder
YCIRWMP Public Involvement Assistant Coordinator
(530) 906-4227
admin@yubairwmp.org
11/1, 11/8 06541564