

CITY OF YUBA CITY
STAFF REPORT

Date: September 15, 2020
To: Honorable Mayor & Members of the City Council
From: Public Works Department
Presented by: Diana Langley, Interim City Manager

Summary

Subject: 2020 North Sacramento Valley Integrated Regional Water Management Plan Update

Recommendation: Adopt a Resolution authorizing the adoption of the 2020 North Sacramento Valley Integrated Regional Water Management Plan Update

Fiscal Impact: None at this time. The North Sacramento Valley Integrated Regional Water Management Plan has and will position the City for grant funding.

Purpose:

To document and improve regional water resources management conditions in compliance with California Department of Water Resources (DWR) guidelines.

Background:

The City of Yuba City is a stakeholder in the Northern Sacramento Valley (NSV) Integrated Regional Water Management Plan (IRWM) region, which includes Butte, Colusa, Glenn, Shasta, Sutter and Tehama Counties. At its April 14, 2014 Board meeting, the NSV IRWM Board adopted the final NSV IRWM Plan. This plan documents the regional water resource management conditions, needs, and strategies; describes the process and projects that will improve regional water resource management in the IRWM region; and complies with DWR IRWM grant program guidelines. On March 2, 2020, the NSV IRWM Board adopted a 2020 update to the NSV IRWM (Attachment 2), which is on file in the Public Works Department at City Hall and available online at: <https://www.yubacity.net/publicworksplans>.

On August 21, 2018, Council approved the City's Storm Water Resource Plan (SWRP) to comply with storm water regulations and compete for future voter-approved state bond funds for the construction of storm water and dry-weather runoff projects. A section of the SWRP identified improvement projects for the City's storm water infrastructure with the intention of positioning the City for future Proposition 1 grant funding.

In 2019, Butte County was the lead agency for the NSV IRWM Region's Proposition 1 Round 1 grant funding application. Butte County examined the projects identified in approved SWRPs from various NSV IRWM stakeholders. Two of the City's SWRP projects were selected to be included in Butte County's NSV IRWM Proposition 1 Round 1 grant application: Gilsizer North Detention Basin Improvement Project and Trash Capture Project in Gilsizer Slough at Lincoln Road.

On July 3, 2020, DWR announced the final awards for the Proposition 1 Round 1. Both of the City's projects were awarded full funding in the amount of \$970,700.

Analysis:

Formal adoption of the 2020 NSV IRWM Plan Update by the City is a prerequisite for receiving any state funding related to water resource projects that are a part of the NSV IRWM Plan. Staff recommends accepting and adopting the 2020 NSV IRWM Plan Update in order to qualify for Proposition 1 Round 1 funding awards.

Fiscal Impact:

There are no direct fiscal impacts associated with adopting the 2020 NSV IRWM Plan Update. However, if Council elects not to adopt the plan, then the City will not be eligible to receive over \$970,000 in grant funds awarded by DWR. Adopting the plan update will assure the City is positioned to receive future Proposition 1 grant funding.

Alternatives:

Do not adopt the resolution adopting the 2020 NSV IRWM Plan Update, which would forfeit \$970,700 in Proposition 1 grant funding for two storm water projects.

Recommendation:

Adopt a resolution authorizing the adoption of the 2020 Northern Sacramento Valley Integrated Regional Water Management Plan Update.

Attachment:

1. Resolution
2. 2020 Northern Sacramento Integrated Regional Water Management Plan Update and Link

Prepared by:

/s/ William Jow

William Jow
Assistant Engineer

Submitted by:

/s/ Diana Langley

Diana Langley
Interim City Manager

Reviewed by:

Department Head

Finance

City Attorney

DL

SM

SLC by email

ATTACHMENT 1

RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUBA CITY
ADOPTING THE 2020 NORTH SACRAMENTO VALLEY INTEGRATED REGIONAL WATER
MANAGEMENT PLAN UPDATE**

WHEREAS, an Integrated Regional Water Management Plan (IRWMP) is a voluntary and comprehensive non-regulatory planning document prepared on a region-wide scale that identifies broadly supported priority water resources projects and programs with multiple benefits; and

WHEREAS, the benefits of integrated regional water management planning are intended to increase efficiencies and effectiveness of water resources planning, enhance collaboration across agencies and stakeholders, and improve responsiveness to regional needs and priorities; and

WHEREAS, the adoption of the 2020 IRWMP Update is a prerequisite for any state funding of the water resources projects included in the IRWMP; and

WHEREAS, the City of Yuba City is a stakeholder of the Regional Water Management Group (RWMG) for the Northern Sacramento Valley (NSV) region; and

WHEREAS, the RWMG and stakeholders prepared the 2020 NSV IRWMP Update based on the California Department of Water Resources Proposition 1 Integrated Regional Water Management Plan Guidelines; and

WHEREAS, Butte County submitted an application for Proposition 1 IRWMP Implementation on behalf of the City of Yuba City, along with other RWMG stakeholders within the NSV Region, including Butte County as grant administrator, and grant eligibility requires Butte County and any agency receiving funding for a proposed project to adopt the 2020 NSV IRWMP Update prior to execution of a funding agreement; and

WHEREAS, pursuant to Water Code Section 10543(c) and Government Code Section 6066, Butte County as a member of the RWMG published a Notice of Intent to adopt the 2020 NSV IRWMP Update in the Chico Enterprise Record and Oroville Mercury Register on February 17, 2020 and February 24, 2020 and the NSV Board met the procedural requirements for adopting the 2020 NSV IRWMP Update.

WHEREAS, the 2020 NSV IRWMP Update does not authorize any discrete or specific project by the City of Yuba City or any other party but represents administrative action with no potential to affect the environment, such that no review under the California Environmental Quality Act is required; further, any projects implemented under the 2020 NSV IRWMP Update shall be subject to review pursuant to the California Environmental Quality Act by the implementing agency and to the obtaining of all required permits before they are implemented.

NOW, THEREFORE, BE IT RESOLVED the City Council of the City of Yuba City approves and adopts the 2020 Northern Sacramento Valley Integrated Regional Water Management Plan Update as adopted by the NSV Board on March 2, 2020.

The foregoing resolution was duly and regularly introduced, passed, and adopted by the City Council of the City of Yuba City at a regular meeting thereof held on the 15th day of September 2020.

AYES:

NOES:

ABSENT:

Shon Harris, Mayor

ATTEST:

Patricia Buckland, City Clerk

APPROVED AS TO FORM
COUNSEL FOR YUBA CITY:

Shannon Chaffin, City Attorney
Aleshire & Wynder, LLP

ATTACHMENT 2

RESOLUTION NO. 2020-01

**A RESOLUTION OF THE BOARD OF THE NORTHERN SACRAMENTO VALLEY
INTEGRATED REGIONAL WATER MANAGEMENT GROUP
ADOPTING AN UPDATE TO THE PLAN**

WHEREAS, the Northern Sacramento Valley Integrated Regional Water Management Group developed the Northern Sacramento Valley Integrated Regional Water Management Plan (“Plan”) with the involvement of stakeholders and the interested public over a four-year period; and

WHEREAS, the Board of the Northern Sacramento Valley Integrated Regional Water Management Group adopted the Plan on April 14, 2014; and

WHEREAS, the Plan is considered a “living document” that must be periodically updated to reflect current social, environmental, and regulatory conditions; and

WHEREAS, the Technical Advisory Committee of the Northern Sacramento Valley Integrated Regional Water Management Group has worked since 2016 to update the Plan with the involvement of stakeholders and the interested public; and

WHEREAS, the results of that update are included in “Appendix N: Amendments to the 2014 NSV IRWM Plan” (“Appendix N”).

NOW, THEREFORE, BE IT RESOLVED that the Board of the Northern Sacramento Valley Integrated Regional Water Management Group adopts Appendix N as an integral part of the Plan.

DULY PASSED AND ADOPTED this 2nd day of March, 2020 by the Board of the Northern Sacramento Valley Integrated Regional Water Management Group by the following vote:

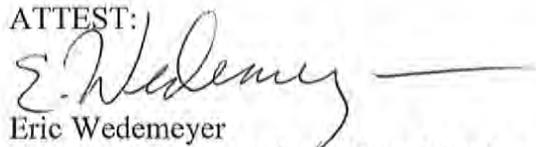
AYES: Campbell, Carter, Connelly, Farr, Moty, Muehlbacher, Sale,
Schwab, Sherrill, Viegas, Williams, Ziegenmeyer
NOES: X

ABSTAIN: X
RECUSE: X



ANN SCHWAB, CHAIR
Northern Sacramento Valley
Integrated Regional Water Management

ATTEST:



Eric Wedemeyer
Technical Advisory Committee Member, NSV IRWM

Appendix N: Amendments to the 2014 NSV IRWM Plan

I. Amendments to Chapter 1: Governance and Region Description

IRWM 2016 Plan Standard: If the IRWM region has areas of nitrate, arsenic, perchlorate, or hexavalent chromium contamination, the Plan must include a description of location, extent, and impacts of the contamination; actions undertaken to address the contamination, and a description of any additional actions needed to address the contamination.

Chapter 1 of the 2014 NSV IRWM Plan (2014 Plan) contains the NSV Region Description. Water quality conditions are described in the following sections:

- Chapter 1, Section 1.2.5.3 addresses Groundwater
- Chapter 1, Section 1.2.5.3 addresses Groundwater Monitoring Programs
- Chapter 1, Section 5 addresses Water Quality

As stated in Section 1.2.5.3.1 of the 2014 Plan, several agencies including counties and cities, the U.S. Geological Survey, the Department of Water Resources (DWR), Tribes, water purveyors and districts, watershed groups, and others have all been involved in monitoring different parameters of water quality and quantity. Some of these monitoring efforts have been ongoing for many years, and others have been initiated only recently. The status of monitoring in the region is constantly changing as new programs evolve and monitoring wells are drilled, constructed, upgraded, or abandoned.

The Sacramento Valley Water Quality Coalition (SVWQC) was formed in 2003 to enhance and improve water quality in the Sacramento River basin. They coordinate efforts to implement the Irrigated Lands Regulatory Program (ILRP), including surface water quality monitoring, and recent requirements to expand their program to include a groundwater component.

The SVWQC developed a Groundwater Quality Assessment Report (GAR) that identifies the high vulnerability groundwater areas where Groundwater Quality Management Plans must be developed and implemented, and where Members must prepare and submit Nitrogen Management Plan Summary Reports to the Coalition.

The CV-SALTS program (www.cvsalinity.org/) aims to develop a workable, comprehensive plan to address salinity, including nitrates, throughout the region in a comprehensive, consistent, and sustainable manner.

With the onset of the Sustainable Groundwater Management Act of 2014 (SGMA), Groundwater Sustainability Agencies (GSAs) in the NSV Regions will be developing plans for monitoring and managing groundwater quantity and quality. Those Plans will be completed by January 31, 2022. The goal is to coordinate with existing monitoring efforts so as not to duplicate efforts. Because most water contamination problems appear to be localized in the NSV Region, efforts to resolve issues have been similarly local. As groundwater Management Plans are developed through SGMA, GSAs will have an expanded role in addressing the various problems. The NSV has served as a clearinghouse for GSAs and expects to continue this role as more cohesive responses to specific problems are developed.

Nitrate

High nitrate concentrations are not generally observed in the NSV region. The Federal and California Maximum Contaminant Level (MCL) is 10 mg/L (as N). A CV-SALTS May 2016 document, Central Valley SNMP (Salt-Nitrate Management Plan), contains regional maps indicating that, generally, less than 20% of Central Valley wells exceed these standards. The Sacramento Valley Water Quality Coalition's monitoring efforts found nutrient concentrations in Coalition's samples were low, with only ten exceedances of the water quality objective for nitrate in 1,558 samples tested throughout the entire Sacramento Valley region.

Instances of Nitrate contamination from septic systems exist in the Antelope neighborhood of east Red Bluff and in parts of Chico. Sewer hook ups are needed in these cases. In Chico, the Water Board has initiated a prohibition on new septic systems.

In Corning, a municipal well has elevated nitrate excursions which is likely caused by agricultural activities and septic systems.

Other isolated instances of elevated nitrate (10mg/L or above) in wells are observed on the Geotracker database over the past three years, and these include ADM Rice in Williams in Colusa County, Willows and Orland in Glenn County, City of Live Oak and Yuba City in Sutter County, Durham, Oroville, Gridley, and Nord in Butte County.

Arsenic

Arsenic is naturally occurring and may occur in some groundwater sources on the west and east sides of the valley. There are both legacy and a small number of current sources of arsenic in the Sacramento River Watershed. The Federal and California Maximum MCL is 0.010 mg/L, or 10 parts per billion. Based on review of California Department of Pesticide Regulation's Pesticide Use Reporting data, there is very little remaining agricultural use of arsenic-based pesticide products, and arsenic has only a few potentially significant sources: (1) natural background from arsenic in the soils, (2) arsenic remaining from legacy lead arsenate use in orchards, (3) arsenic used in various landscape maintenance and structural pest control applications (non-agriculture), and (4) arsenic used in wood preservatives. One possible source is the wooden bridge structure just upstream of the Grand Island Drain sampling site, if arsenic-based preservatives were used in the wood. A final, but somewhat unlikely source is an arsenic-based additive that may still be used for chicken feed and which can potentially make its way through the chicken and into agricultural fields and runoff if the poultry litter is used on the field.

Arsenic in groundwater in the Grand Island (Grimes) area of Colusa County has caused the small community to rely on bottled water for drinking. This community is designated as Disadvantaged (DAC). The drinking water issues in this community are being addressed through the IRWM DAC Assistance program, and the County is actively seeking grant funding to improve the small water system in this community.

The City of Live Oak received funding through the 2014 round of drought relief funding through Proposition 84 and the IRWM. This project, which is funded and under construction, will provide an additional 1,000 gpm of groundwater to a part of the community that was underserved during the

drought. Test well sampling showed the presence of arsenic at 49 ppb. The \$2,000,100 grant is also funding the addition of a ferric chloride coagulation system to achieve drinking water standards.

The City of Redding has several wells which can exceed current arsenic standards. Well's #11 and #13 are not run and Well #12's production is currently limited to ensure it does not exceed the arsenic MCL. A treatment system has been designed for Well #12 and the City is seeking funding sources.

Perchlorate

Perchlorate is a chemical used in the production of rocket fuel, missiles, fireworks, flares, explosives, and matches. These industries do not exist in the NSV region. The Federal and California Maximum MCL is 6.0 µg/L, or 6 micrograms per Liter. Perchlorate is observed in the NSV region at the El Rio Estates in the Redding Enterprise area in Shasta County and at the El Margarita Mutual Water Company in Yuba City in Sutter County.

Chromium-6

Similar to Arsenic, Chromium-6 is naturally occurring and may occur at problematic levels in some groundwater sources on the west and east sides of the valley. Since 2010 the CA State Water Resources Control Board, Division of Drinking Water, has documented 47 sampling events in the NSV IRWMP area with levels of Chromium-6 detected at half the MCL (10 µg /L) or higher. Prior to 2010 (2001-2009) there were 130 sampling events where Chromium-6 was detected at half the MCL or higher.

Areas where sampling events revealed levels below the MCL were located in:

- Butte County – 22 events CAL-WATER SERVICE/Chico supply wells (5-9.9 µg /L)
- Shasta County – Millville Elementary School (6.7 µg /L)

Areas where sampling events revealed levels above the MCL were located in:

- Glenn County - 24 events, CAL-WATER SERVICE /Willows supply wells (14-18 µg /L)

The City of Willows now provides treatment for well water for Chromium-6.

Chromium-6 has been regulated under the 50-µg/L primary drinking water standard (MCL) for total chromium. California's MCL for total chromium was established in 1977, when adopted it was then a "National Interim Drinking Water Standard" for chromium. The total chromium MCL was established to address exposures to chromium-6, the more toxic form of chromium. Chromium-3 (trivalent chromium) is a required nutrient.

The US Environmental Protection Agency (EPA) adopted the same 50-µg/L standard for total chromium, but in 1991 raised the federal MCL to 100 µg/L. California did not follow US EPA's change and stayed with its 50-µg/L standard. In addition to the total chromium MCL, the CA State Water Resources Control Board, Division of Drinking Water, monitors the MCL for Chromium-6 at 10 µg/L. On May 31, 2017, the Superior Court of Sacramento invalidated the 10 µg/L and the State Water Resources Control Board began the process of adopting a new MCL.

Addressing Water Quality Concerns

Chapter 1, Section 1.5.3.3: *Water Quality Effects of IRWMP Projects by Resource Management Strategy*, discusses the potential impacts that projects implementing these general categories of RMSs may have on water quality in the IRWM region.

As mentioned above, water managers, and water planning groups throughout the NSV region are addressing water quality issues through monitoring, and localized projects. The NSV group is currently working with consultants to complete region-wide Disadvantaged Community (DAC) needs assessments through the IRWM Disadvantaged Community Assistance program. Potential water quality issues will also be addressed through development of local Groundwater Sustainability Plans (GSPs).

Financial and Staffing resources are stretched thin in the NSV region. A stable funding source through the IRWM program is critical to addressing water quality issues throughout the State. We are hopeful that the Disadvantaged Community Assistance Program will help increase the capacity of small water systems in disadvantaged communities in the NSV region so that they can successfully compete for funding for system improvements. There are also several water quality improvement projects currently in the NSV IRWMP that require funding for planning and implementation.

IRWM 2016 Plan Standard: Describe likely Climate Change impacts on their region as determined from the vulnerability assessment.

The 2014 NSV IRWM Plan addresses climate change in the following sections:

- Section 1.4.3: Potential effects of climate change
- Section 1.5.3.1: Potential water quality impacts
- Chapter 4: Resource Management Strategies, specifically:
 - Section 4.3: Climate Change Vulnerability
 - The seven areas of potential climate change vulnerability are scored in Section 4.3.1 and prioritized in Section 4.3.2
 - Table 4-5 Climate Change Sensitivity Survey Scoring Sheet
 - Table 4-5 summarizes that the NSV region is potentially most sensitive to water supply and flooding impacts that may be exacerbated by climate change.
- Chapter 5: Climate change vulnerability and greenhouse gas (GHG) emissions are considered in the project review process as discussed in Section 5.1.2.1.1 on page 5-9, and as seen in Table 5.1 on page 5-10
- 2016 Climate Change Plan Standard additions in this Appendix

Upon review of the Climate Change Vulnerability Assessment in the NSV IRWM Plan, likely climate change impacts on the region are addressed below:

Highest potential impact:

1. Water Supply

Agriculture is a major economic driver in the NSV Region. The region is dependent on adequate surface and groundwater supplies for irrigation, environmental, municipal and urban water supplies. The Sierra snowpack acts as storage for approximately one third of the region's water supply.

Potential climate change impacts include more frequent and extreme drought periods, and reductions to the amount of snowpack. It is predicted that more precipitation will fall as rain, rather than snow. Adequate surface water storage does not exist to hold the volume from increased rain events. Drought and reduced snowpack will greatly reduce surface water supplies, which in turn will impact the groundwater resource. There are efforts underway throughout the state to develop new water storage facilities. One such proposed project, the Sites Project, would be located in Colusa and Glenn Counties in the NSV region.

2. Flooding

There is great potential in the NSV region for flooding due to the predicted increases in duration and intensity of rain events. Both the Sacramento and Feather rivers and their tributaries traverse the region. These systems rely on aging levees and other aging infrastructure to contain potential flood flows. In the winter of 2017, a potential disaster was averted at the Oroville Dam facility when aging infrastructure failed.

Second highest potential impact:

1. Water Quality

Water resources in the NSV Region is of high quality, but potential climate change-related impacts could compromise water quality. Devastating wildfire incidents are increasing throughout California. In the NSV Region, Colusa County, Butte County, and Shasta County have all experienced this firsthand. Resulting erosion from the upper watersheds is a water quality concern for many years after wildfires. Low flows due to drought and other water supply threats mentioned above can also negatively affect water quality.

In the NSV, waterbodies are impacted by mercury left over from the California Gold Rush. In addition to impacts to the wider Sacramento River, there are several water bodies that flow into the NSV including but not limited to the Yuba, Feather, Bear Rivers and their tributaries. In addition to fish consumption advisories due to Mercury in the Sacramento River there is a specific Total Maximum Daily Load (TMDL)s for mercury, namely this is the Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch TMDL.

II. Amendments to Chapter 2: Goals and Objectives

IRWM 2016 Plan Standard: Address adapting to changes in the amount, intensity, timing, quality and variability of runoff and recharge.

The following amends section 2.3 and 2.4 with an additional objective under the Water Supply Reliability Goal.

Objective 1-1a, Adaptation to changes in the amount, intensity, timing, quality and variability of runoff and recharge.

Climate change is predicted to have widespread effects on the amount, intensity, timing, quality and variability of runoff and recharge. More intense rainfall events, changes in total precipitation, and shifts toward more precipitation falling as rain will reduce water storage as snowpack and increase flooding in the region. To effectively manage water, the region needs to be able to store water when excess is available for use during the dry periods, prepare for flooding, and effectively manage the watershed.

Groundwater recharge will likely be an effective water management action evaluated and implemented by GSPs in the NSV region to address groundwater sustainability and changes in the amount and intensity of runoff. See Objectives 1-9, 2-1, 2-2, 2-3, 2-4, 4-4, and 4-5 in section 2.3 and 2.4 for additional information on how the IRWM will address these changes.

IRWM 2016 Plan Standard: Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.

Effects of sea level rise on water supply conditions and adaptation measures are not included as an objective in the NSV IRWMP due to the inland location of the NSV region.

Goal 1-4, Coordinate and protect regional groundwater resources, consistent with locally developed GMP's that monitor groundwater levels, groundwater quality, and inelastic land subsidence (Page 2-7). This goal is amended with the statement: The effects of sea level rise on groundwater quality have been considered and determined to be inapplicable in the NSV region.

III. Amendments to Chapter 3: Plan Development Process, Schedule, and Phasing

IRWM 2016 Plan Standard: Contain a public process that provides outreach and opportunity to participate in the IRWM Plan; and specifically, coordination with Native American Tribes is to be conducted on a government-to-government basis.

IRWM 2016 Plan Standard: Identify process to involve and facilitate stakeholders during development and implementation of IRWM plan regardless of ability to pay; include description of any barriers to involvement.

The decision-making process and the roles that stakeholders can occupy are described in the 2014 Plan in Chapter 3. Section 3.1 defines "stakeholder" as "any individual or organization with an interest in, or who would be impacted by, the work of the NSV Board". The 18-member NSV Board consists of three individuals selected by each of the respective county Boards of Supervisors and includes landowners, water purveyors, members of the Board of Supervisors, and other elected officials. The NSV Board's open-door policy welcomes stakeholder participation by: conducting public meetings subject to the Brown Act; maintaining, and receiving comments from, the NSV IRWM website (<http://nsvwaterplan.org>); and, holding public workshops throughout the IRWMP development process.

Section 3.1.6 discusses the decision-making process. The general decision-making process for the NSV Board involves the NSV Board making all final decisions at publicly noticed Brown Act compliant meetings. Decisions are based on information and recommendations received from the NSV Technical Advisory Committee (NSV TAC), various subcommittees, and public comment.

Stakeholder involvement is highly encouraged and welcomed at each NSV Board and NSV TAC meeting, with a public comment period on each agenda.

Per 2016 IRWM Program Guidelines, each IRWM Plan should contain a public process that provides outreach and opportunity to participate in the IRWM Plan and specifically to provide opportunities for

coordination with Tribes. Therefore, the NSV is evaluating their Tribal engagement and developing a Tribal Engagement Plan which will include the following:

The NSV recognizes that Tribes are stakeholders and Tribal governments have responsibilities to their own members. At minimum, the NSV Plan identifies that Tribes may provide information to any Representatives or Tribal Representative on the NSV Board, NSV Technical Advisory Committee (NSV TAC), and to various subcommittees. Direct information may be provided by Tribes to NSV board members at any time because the NSV has an open door participation policy. Tribes can participate directly in four additional ways: 1) Tribes may speak with the seated Tribal representative of the Technical Advisory Committee or their alternate to provide guidance to their decisions, 2) Tribes are to be contacted by state and local agencies on a government-to-government basis through outreach and consultation processes, 3) Tribes may participate directly in NSV public meetings, including NSV board and TAC meetings, and 4) Tribes are eligible to provide projects to be considered for IRWM funding which ultimately shapes watershed management in the region. There are three key components to Tribal participation in the NSV

- Encourage Tribal participation in the NSV Board meetings, and in all decision-making bodies or workgroups developed by the NSV Technical Advisory Committee Meetings
- Funding for Tribal engagement coordination staff to work with seated Tribal Representatives and be guided by a Tribally- led regional Tribal Advisory committee to coordinate Tribal participation in the region, which serves to inform Tribes, coordinate Tribal engagement activities and to advise the Tribal Representative or their alternate prior to NSV IRWM Board and Technical Advisory Committee meetings.
- Have a Tribal Representative seat on the NSV Board, with an alternate person to ensure consistent Tribal participation.

At this writing, the NSV Governance Subcommittee has reconvened to consider changes to the NSV's Bylaws to change the composition of the Board and Technical Advisory Committee to include seats for Tribal representatives. Composition of the NSB Board and TAC is intended to be the same for all entities represented.

Chapter 3 of the 2014 Plan discusses the outreach efforts for the public to participate in the IRWM plan. In addition, to the NSV Board's open-door policy welcoming stakeholder participation and input, the 2014 plan Section 3.1.3 describes the outreach to disadvantaged communities (DAC) and Section 3.1.4 describes the outreach to Tribal stakeholders. During the Tribal training session received, staff received information regarding federal Indian law and Tribal sovereignty, and the difference between collaboration and formal government-to-government consultation. This serves as the basis for coordination with Tribal stakeholders.

Outreach to Tribes has been conducted as described in Section 3.1.4 of the 2014 Plan. To date no formal government-to-government consultations have taken place, Tribes do collaborate through the NSV TAC meetings. Staff from the Colusa Indian Community Council has sat on the NSV TAC as an at-large member since the committee's inception on July 2011. Furthermore, the at-large seat was formalized into an at-large seat specifically for a tribal representative at the NSV Board meeting on March 2015. Staff from the Cortina Rancheria also regularly attends the NSV TAC meetings.

In recognition that IRWMs are meant to be collaborative and in keeping with EO-B10-11 and SB18 early in the project selection processes, Tribal TAC members and Tribes in the region will be given an

opportunity to review each project submission in order to identify how and if Tribal perspectives and/or collaboration should be included in the project because cultural resources will be impacted or because their collaboration will strengthen the project to make it more competitive within the funding region.

Tribes are separate and independent sovereign nations within the territorial boundaries of the United States. The sovereignty of Tribes has been acknowledged in the U.S. Constitution. This sovereignty is inherent and flows from the pre-constitutional and extra-constitutional governance of the Tribe. Early federal policy and U.S. Supreme Court case law recognizes that Tribes retain the inherent right to govern within political boundaries (*Worcester v. Georgia* (1832)) and that power to interact with Tribes is vested in the federal government (*Cherokee Nation v. Georgia* (1831)). This established governmental structure recognizes the sovereign and political independence of Tribal nations and its members. This right is also recognized by the State of California. Pursuant to the Executive Order B-10-11, the State “recognizes and reaffirms the inherent right of these Tribes to exercise sovereign authority of their members and territory.”

SB-18 states, “(1) Existing law establishes the Native American Heritage Commission and authorizes the commission to bring an action to prevent severe and irreparable damage to, or assure appropriate access for Native Americans to, a Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property. (2) Existing law requires a planning agency during the preparation or amendment of the general plan, to provide opportunities for the involvement of citizens, public agencies, public utility companies, and civic, education, and other community groups, through public hearings and any other means the city or county deems appropriate.”

The 2016 IRWM Program Guidelines also require the Plan to identify the process to involve and facilitate stakeholders during development and implementation of IRWM plan regardless of ability to pay; include description of barriers to involvement. In the 2014 Plan, Section 3.1.1 Open Door To Stakeholders/Stakeholder Involvement concludes with the following paragraph: “The NSV Board and TAC have never restricted involvement, or composition of the NSV Board and TAC, due to inability of an individual or group to contribute financially to the IRWM process. Stakeholder comments and involvement have been encouraged through all of the methods mentioned above without regard for any of the stakeholders’ ability to contribute financially.”

Elements of communication between the Tribal member(s) of the TAC, or the Tribal engagement coordinator once identified, and the NSV Board should include the following:

- List all Tribes within the region and the level of participation within the IRWM plan.
- Contact Tribal leadership and environmental directors of the traditional Tribes of NSV by email and through follow-up by phone calls in order to increase participation in the NSV and to identify Tribal water concerns and integrate these concerns into the IRWM Plan.
- The Tribal Representative and/or an identified Tribal engagement coordinator are to provide necessary follow-up from meetings to discuss Tribal issues and concerns, and to identify opportunities to improve conditions for the Tribes by way of the TAC.
- The meetings will also be used to assist in developing updates and projects for inclusion in the IRWM Plan and for funding submission.

- The Tribal Representative and/or Tribal engagement coordinator will assist designated Tribal environmental staff to respond to the Call for Projects for inclusion in the IRWM Plan and encourage participation in the “Call for Projects” public hearings.
- Tribal council leadership through their environmental programs staff must receive sufficient notice to develop Tribal Projects for inclusion in the Plan. “It is expected that project development will include activities such as identifying action items to implement proposed projects.”
- The Tribal Representative and/or the Tribal engagement coordinator will maintain a list of Tribal contacts, the list of Tribal water management issues, concerns, needs, and priority actions and Projects that will be included in the Plan, as well as meeting sign-up sheets, meeting summaries and Tribal trainings and workshops information.
- The Tribal Representative and/or the Tribal engagement coordinator will create a questionnaire for distribution to NSV Tribes to facilitate the gathering of Tribal water management issues, concerns, needs, priority actions and Projects that will be included in the Plan and needed Tribal Trainings.

A second formal Tribal outreach process is planned after changes to the NSV Bylaws are considered.

Proposition 1 funding made disadvantage community outreach available in the NSV and throughout the Sacramento River Funding area. The *North Sacramento Valley IRWM Plan 2014* discusses water resource issues and major water conflicts (Chapter 1.2.5), it does not directly address specific technical assistance needs and requests from the stakeholders. Below is information gathered from surveys, the workshop and one-on-one conversations during the outreach effort. The intent of this section is to identify technical assistance needs for follow-up with stakeholders through the IRWM process.

➤ **System Infrastructure/Hardware**

- Leak detection – Leaks are a significant problem in this region and a high priority. Leak detection equipment/sharing would be very useful.
- Camera Equipment – Water districts require camera’s for assessment of their water system.
- Modeling – Water districts would like some technical Assistance in modeling their water system.
- SCADA Software – Supervisory control and data acquisition (SCADA) is a system of software and hardware elements are required by water resource operators.
- Electronic Monitoring – Electronic monitoring of wells and storage levels to address leaks (Lake Madrone WD)

➤ **Mapping**

- GIS Mapping – Stakeholders expressed an interested in using GIS mapping to assist their region.

➤ **Funding and Grant Writing**

- Grant Writing – Assistance in grant writing is being requested by stakeholders. Grant writing workshops would be very useful.
- Funding Opportunities – Stakeholders would like a comprehensive list of grant opportunities to be provided on an on-going basis for the NSV IRWM.
- Funding Fairs – Stakeholders would like assistance in coordinating Funding Fairs for the IRWM, DAC’s and Tribes.

- **Water Quality**
 - Sampling – Assistance is requested in water quality sampling, testing of quality control/quality assurance and training.
- **Regulations**
 - Conservation Regulations – The cost associated with conservation regulations is causing a cash flow problem. Stakeholders would like funding or other ways to alleviate the burden.
- **Regional Resource Center**
 - Partners – Stakeholders would like to explore potential partnerships like Association of California Water Agencies (ACWA) for this idea.
 - Organization – Water purveyors would like to organize per Area Development Districts.

IV. Amendments to Chapter 4: Resource Management Strategies (RMS)

By way of this amendment, the 2014 Plan is updated to reference the California Water Plan 2013 update (2013 CWP) throughout Chapter 4, rather than the California Water Plan 2009 (2009 CWP) update.

Additionally, the following is added to the planning documents and processes list on page 4.9 in section 4.3.1

- Tehama County Multi-Jurisdictional Hazard Mitigation Plan which identifies natural hazards and climate change adaption and resiliency strategies for all pertinent hazards. The plan can be found at <http://mitigatehazards.com/tehama-hmp/>.
- Glenn County Multit-Jurisdictional Hazard Mitigation Plan (Adopted 10-16-2018)

IRWM 2016 Plan Standard: Consider all 32 California Water Plan (CWP) RMS criteria listed in the CWP Update 2013. Identify RMS incorporated in the IRWM Plan.

Table N-1 below replaces Table 4-1 in Section 4.1 of the 2014 Plan. This new table includes all RMSs identified in the CWP RMS criteria (32) in Table 3 from the 2013 CWP and was taken directly from Volume 3. Chapter 1 - 6 of the 2013 CWP.

Several Resource Management Strategies that were included in the 2009 CWP update have been moved into the Other Strategies category. Moving forward, these new RMSs will be incorporated into the pre-screening tool used to assess whether a particular project is appropriate for a particular funding opportunity.

Table N-1 California Water Plan Update 2013 Resource Management Strategies. (Source: Volume 3, Chapter 1 - 6 of the 2013 CWP).

Reduce Water Demand	Improve Water Quality
Agricultural Water Use Efficiency	Drinking Water Treatment & Distribution
Urban Water Use Efficiency	Groundwater / Aquifer Remediation
Improve Operational Efficiency & Transfers	Matching Quality to Use
Conveyance – Delta	Pollution Prevention
Conveyance – Regional / Local	Salt & Salinity Management
System Reoperation	Urban Stormwater Runoff Management
Water Transfers	Practice Resource Stewardship
Increase Water Supply	Agricultural Land Stewardship
Conjunctive Management & Groundwater	Ecosystem Restoration
Desalination — Brackish & Seawater	Forest Management
Precipitation Enhancement	Land Use Planning & Management
Recycled Municipal Water	Recharge Areas Protection
Surface Storage – CALFED	Sediment Management*
Surface Storage – Regional/Local	Watershed Management
Improve Flood Management	People & Water
Flood Management	Economic Incentives (Loans, Grants, & Water Pricing)
Other Strategies	Outreach and Engagement*
Crop idling, dew vaporization, fog collection, irrigated land retirement, rainfed agriculture, and waterbag transport	Water and Culture*
	Water-Dependent Recreation
Note:	
* New resource management strategies for California Water Plan Update 2013	

IRWM 2016 Plan Standard: Consideration of climate change effects on the IRWM region must be factored into RMS. Identify and implement, using vulnerability assessments and tools such as those provided in the Climate Change Handbook, RMS and adaptation strategies that address region-specific climate change impacts.

1. Demonstrate how the effects of climate change on its region are factored into its RMS.

The following amends Chapter 4 to demonstrate how the effects of climate change are factored into RMSs of the 2014 Plan. The effects of climate change on the region are described throughout Chapter 4: Resource Management Strategies, which describes the RMSs and the region’s vulnerabilities to climate change. Additionally the bulleted lists below show the specific RMSs that are relevant to each of the seven areas of climate change vulnerability addressed in Chapter 4.3.1.

Water Demand

- Agricultural water use efficiency
- Urban water use efficiency
- Conveyance – regional/local
- System reoperation
- Water transfers
- Conjunctive management and groundwater storage
- Precipitation enhancement
- Recycled municipal water
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Drinking water treatment and distribution
- Matching quality to use
- Agricultural land stewardship
- Ecosystem restoration
- Forest Management
- Land use planning & management
- Watershed management
- Economic incentives
- Outreach and engagement
- Water and culture

Water Supply

- Agricultural water use efficiency
- Urban water use efficiency
- Conveyance – regional/local
- System reoperation
- Water transfers
- Conjunctive management and groundwater storage
- Precipitation enhancement
- Recycled municipal water
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Flood Management
- Drinking water treatment & distribution
- Matching quality to use
- Agricultural land stewardship
- Ecosystem restoration
- Forest Management
- Land use planning & management
- Recharge areas protection
- Sediment Management
- Watershed management
- Economic incentives
- Outreach and engagement
- Water and culture
- Water-Dependent recreation
- Crop idling

Water Quality

- Agricultural water use efficiency
- Urban water use efficiency
- Conveyance – regional/local
- System reoperation
- Water transfers
- Conjunctive management and groundwater storage
- Recycled municipal water
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Flood Management

- Drinking water treatment & distribution
- Matching quality to use
- Pollution prevention
- Urban storm water runoff management
- Agricultural land stewardship
- Ecosystem restoration
- Forest Management

- Land use planning & management
- Sediment Management
- Watershed management
- Economic incentives
- Outreach and engagement
- Water and culture
- Water-Dependent recreation

Sea Level Rise

- N/A

Flooding

- Conveyance – regional/local
- System reoperation
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Flood management
- Urban storm water runoff management
- Ecosystem restoration
- Forest management

- Land use planning & management
- Sediment management
- Watershed management
- Economic incentives
- Outreach and engagement
- Water and culture
- Water-Dependent recreation

Ecosystem and Habitat Vulnerability

- Agricultural water use efficiency
- Urban water use efficiency
- Conveyance – regional/local
- System reoperation
- Water transfers
- Conjunctive management and groundwater storage
- Recycled municipal water
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Flood Management
- Drinking water treatment & distribution

- Matching quality to use
- Pollution prevention
- Agricultural land stewardship
- Ecosystem restoration
- Forest Management
- Land use planning & management
- Sediment Management
- Watershed management
- Economic incentives
- Outreach and engagement
- Water and culture
- Water-Dependent recreation

Hydropower

- System reoperation
- Surface Storage – CALFED
- Surface Storage – Regional/Local
- Flood Management

- Land use planning & management
- Sediment Management
- Watershed management
- Economic incentives

- Outreach and engagement

Tribes, water districts and other governments may have developed climate change adaptation or resiliency plans. Other areas of consideration are:

Water Supply – Fish Passage and habitat

Water Quality – Traditional Tribal fish consumption and cultural use

Ecosystem and Habitat Vulnerability – Fish habitat resiliency

Hydropower – Water and culture

2. Reducing energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.

Many of the RMS's included in the 2013 CWP encourage diversification of water management approaches that could ultimately reduce GHG emissions. The NSV Region incentivizes minimizing GHGs by assigning points in the existing project review process detailed in Chapter 5. Additional project ranking criteria based on the 2013 CWP will be further incorporated into the Project Review and selection process as is detailed in the amendments to Chapter 5 included in this Appendix.

Projects that include a reduction in GHG emissions will have the benefit of scoring higher in future funding rounds, and therefore, will be more likely to be selected. This will encourage project proponents to submit additional projects that have a GHG reduction component. The 2014 Plan includes numerous water use efficiency projects that reduce energy consumption, and ultimately GHG emissions. Many of these projects can have immediate, short-term benefits in terms of user costs as well as helping meet the State's carbon reduction goals.

3. An evaluation of RMS and other adaptation strategies and ability of such strategies to eliminate or minimize those vulnerabilities, especially those impacting water infrastructure systems.

The Regional Management Strategies and other adaption strategies have been included throughout the 2014 Plan and are incorporated into the project selection process detailed in Chapter 5 and this Appendix. These strategies can be useful tools to help identify and address vulnerabilities within the NSV Region that may be exacerbated by climate change. The Vulnerability Assessment in Chapter 4 identified Water Supply, Flooding and Water Quality as the areas most at risk due to climate change. These three vulnerabilities are all dependent on the region's water infrastructure systems to support their functionality.

If funded, many of the projects included in the plan will help to minimize many of the vulnerabilities identified within the plan, including strengthening the region's water infrastructure systems. It is unlikely these vulnerabilities will be fully eliminated due to the overwhelming challenge that effects of climate change may present. Additionally, as populations increase and environmental regulations become stricter, additional constraints on the region's water infrastructure system will only increase. This is why it is imperative to identify, fund and implement projects and actions that can improve the region's ability to adapt to a changing climate in order to continue thriving into the future.

4. Consider options for carbon sequestration and renewable energy.

Plant growth sequesters carbon. Trees, in particular, remove carbon from the atmosphere for long periods of time. The NSV supports management of upper watersheds to balance tree growth with regional water demand, which should have the added benefit of improving water quality. The NSV supports orchard management practices which sequester carbon in productive trees for long periods as well as below canopy cropping to further lock carbon in the soil. The NSV supports row and field cropping strategies which stabilize carbon in the soil.

Several water districts in the NSV, including Bella Vista Water District and RD 108, have installed solar arrays. The NSV applauds these installations and supports the development of more renewable energy projects directly related to offsetting power use and to allow for general energy production provided appropriate environmental procedures and local permitting processes are followed. Renewable sources may include solar, wind, and small hydro.

V. Amendments to Chapter 5: Project Selection Process and Procedure

Per the Proposition 1 - 2016 IRWM Program Guidelines, projects included in the IRWM Plan must, at a minimum, consider the following factors:

- How the project contributes to the IRWM Plan objectives.
- How the project is related to resource management strategies selected for use in the IRWM Plan.
- Technical feasibility of the project.
- Specific benefits to Disadvantaged Community (DAC) water issues, including whether a project helps address critical water supply or water quality needs of a DAC.
- Environmental Justice (EJ) considerations.
- Project costs and financing.
- Economic feasibility, including water quality and water supply benefits and other expected benefits and costs.
- Project status.
- Strategic considerations for IRWM Plan implementation and plan merit.
- Contribution of the project in adapting to the effects of climate change in the region.
- Contribution of the project in reducing GHG emissions as compared to project alternatives.
- Whether the project proponent has adopted or will adopt the IRWM Plan.
- For IRWM regions that receive water supplied from the Sacramento-San Joaquin Delta, how the project or program will help reduce dependence on the Sacramento-San Joaquin Delta for water supply.

Continued evaluation of Proposition 1 - 2016 IRWM Program Guidelines reveals that projects included in the IRWM Plan must evaluate these review factors for each project. This evaluation must compare all projects in a systematic manner. The results should be used to promote and prioritize projects in the selection process, while keeping in consideration the unique goals and objectives of the IRWM Region.

IRWM 2016 Plan Standard: Review factors must also include the following climate change and GHG emissions considerations:

- **Include potential effects of Climate Change on the region and consider if adaptations to the water management system are necessary.**
- **Consider the contribution of the project to adapting to identified system vulnerabilities to climate changes effects on the region.**
- **Consider changes in the amount, intensity, timing, quality and variability of runoff and recharge.**
- **Consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.**
- **Consider the contribution of the project in reducing greenhouse gas (GHG) emissions as compared to project alternatives.**
- **Consider a project's ability to help the IRWM region reduce GHG emissions as projects are implemented over the 20-year planning horizon.**
- **Reduce energy consumption, especially the energy embedded in water use, and ultimately reducing GHG emissions.**
- **Specific benefits to critical water issues for Native American tribal communities.**

Under the 2014 Plan, projects submitted into the Plan were required to complete a questionnaire that identifies how the project addresses one or more of the Plan's goals and/or objectives. As a condition of acceptance into the Plan, project proponents were required to submit a letter of support for the Plan itself. All existing project proponents have met these standards.

Since initial approval of the IRWM Plan, new projects have periodically been brought into the Plan and have been held to the same standards. Currently, the process for submitting a project into the Plan is as follows:

1. Proponents complete preliminary project proposal application.
2. The NSV TAC County Staff members review project proposals for clarity, eligibility, and to determine whether proposals meet minimum eligibility requirements, and follows up with proponents as warranted.
3. The NSV TAC reviews proposals quarterly, considers the potential for integration among submitted projects, and may evaluate/rank IRWMP projects, if directed by the NSV Board. The public may comment on proposed projects at this time. During public comment, there will be opportunities to consider and discuss combining or integrating individual projects.
4. The NSV TAC creates a recommendation to the NSV Board on projects to include (or remove) in the NSV IRWMP.
5. The NSV Board accepts public comments and selects projects for inclusion (or removal) in the NSV IRWMP.
6. Additional proposal information will be required when specific grant opportunities become available. The NSV IRWMP will issue funding solicitations and calls for proposals. At that time, NSV IRWMP proposal proponents will be allowed to edit their preliminary proposal, and provide any new information in light of the specific grant requirements.

To bring the Plan into compliance with the Proposition 1 - 2016 IRWM Program Guidelines, new project proponents will be required to address the above-referenced considerations when bringing their projects forward through the NSV TAC evaluation process. While this screening may not apply to some projects, it is an appropriate method for assessing projects that may have climate change considerations.

For projects currently included in the Plan, the NSV TAC has historically implemented a pre-screening tool to assess whether a particular project was appropriate for a particular funding opportunity. Moving forward, this pre-screening tool will be revised to include the evaluation of the above-mentioned climate-change considerations by the project proponent.

Periodically, usually every 2-5 years, project proponents are requested to update their project within the Plan. This update process allows for the incorporation of these considerations when an update takes place. This systematic approach to project evaluation brings the Plan into compliance with the Proposition 1 - 2016 IRWM Program Guidelines.

Amendments to Section 5.4.1: Relation to Local Water Planning

IRWM 2016 Plan Standard: Discuss how the plan relates to these other planning documents and programs. It should be noted that Water Code § 10562 (b)(7) requires the development of a storm water resource plan and compliance with these provisions to receive grants for storm water and dry weather runoff capture projects. Upon development of the storm water resource plan, the RWMG shall incorporate it into IRWM plan. The IRWM Plan should discuss the processes that it will use to incorporate such plans.

Since the adoption of the Plan in 2014, the Sustainable Groundwater Management Act (SGMA) was signed into law and became effective in 2015. SGMA also requires coordination of local land use planning and water management in addition to evaluating groundwater management in light of climate change effects on water resources. As was also mentioned in Section 5.4.1, Relation to Local Water Planning Section-Groundwater Management, Groundwater Sustainability Plans (GSPs) will also play a critical role in groundwater management and encouraging proactive relationships between local land use planner and water resource managers throughout the region and the State. GSPs will be developed through an extensive public process and GSPs will be coordinated to meet the requirements of SGMA including evaluating potential impacts of changing hydrology on water supply and groundwater sustainability. The development of GSPs will also allow for coordinated information sharing and collaboration within and between groundwater basins. The NSV IRWM frequently incorporates an educational item within its regular meetings. This helps to educate NSV Board and NSV TAC members as well as members of the public and other agencies that may attend meetings. This type of education and communication of ideas and issues provides another opportunity to create shared understandings that assist in the management of multiple water demands throughout the State, adapt water management systems to potential climate change, and potentially offset climate change impacts to water supply in California. Building on these concepts, GSPs may also help coordinate regional efforts to incorporate appropriate adaptive strategies as discussed in Section 5.4.

Figure N-1 shows groundwater basins defined by DWR's Bulletin No. 118 and the thirty overlying Groundwater Sustainability Agencies (GSAs) that have registered with the DWR to manage them. All basins in the NSV region requiring management under SGMA have established GSAs.

Figure: 5-3
 Groundwater Sustainability Agencies
 in the Northern Sacramento Valley IRWM

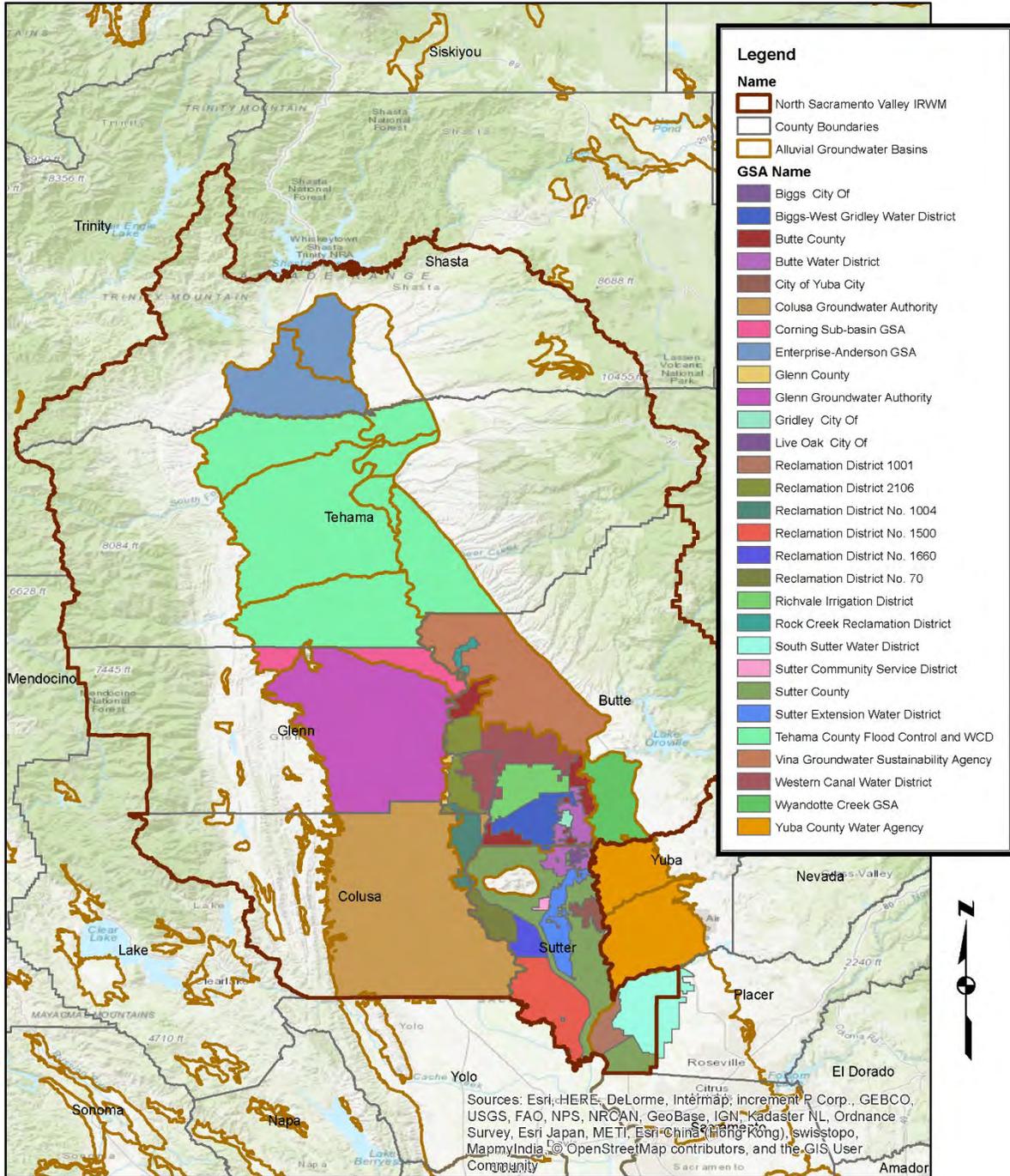


Figure N-1. Groundwater Sustainability Agencies in the Northern Sacramento Valley IRWM

Section 5.4, Relation to Local Water Planning, also includes Table 5-4, Local Water Planning Documents. The table includes General Plans, related to land use planning. This table is updated and included with these amendments as Table N-2.

Table N-2. Updated Table 5-4 in 2014 Plan; Local Water Planning Documents

Table 5-4. Local Water Planning Documents						
County	Local planning documents	Plan Type	Adopting Agency	Adoption Date	Frequency of Updates	Plan Jurisdiction
Butte	Butte County GWMP (AB2030)	GWMP	Butte County Department of Water and Resource Conservation	2004	as-needed	Butte County
	South Feather Water and Power Agency 2010 UWMP	UWMP	South Feather Water and Power Agency	2012	every 5 years	County of Butte, City of Oroville, Oroville Union High School District, Oroville City Elementary School District, Fairmea Elementary School District, Bangor Elementary School District, Oroville Mosquito Abatement District, Butte County Mosquito and Vector Control District, Leno Oroville Area Public Utility District, and Feather River Recreation and Park District
	Paradise Irrigation District UWMP 2015	UWMP	Paradise Irrigation District	2015	every 5 years	Paradise Irrigation District
	CityWater Chico-Hamilton City Hybrid UWMP	UWMP	California Water Service Company	2015	every 5 years	City of Chico and Hamilton City
	CityWater Oroville GWMP	UWMP	California Water Service Company	2015	every 5 years	City of Oroville
	Butte County Water Resources Inventory and Analysis and Update	other	Butte County	2010	as-needed	Butte County
	Thermaito Irrigation District GWMP	GWMP	Thermaito Irrigation District	1998		Thermaito Irrigation District
	Western Canal Water District GWMP	GWMP	WCWD	1995		Western Canal Water District
	Ridgeway Irrigation District GWMP	GWMP	Ridgeway Irrigation District	1995		Ridgeway Irrigation District
	Bugs-West Gridley Water District GWMP	GWMP	Bugs-West Gridley Water District	1995		
	Butte Water District GWMP	GWMP	Butte Water District	1998		
	Big Chico Creek Watershed Alliance Strategic Plan: 2002-2009	Watershed MP	Big Chico Creek Watershed Alliance	2007	as-needed	Big Chico Creek Watershed
	Little Chico Creek Watershed Management Plan	Watershed MP	Little Chico Creek Watershed Alliance		as-needed	Little Chico Creek Watershed
	Charmise Creek Watershed Mgt Plan	Watershed MP	Charmise Watershed Alliance		as-needed	Charmise Creek Watershed
	Butte County GP	GP	Butte County	2010	as-needed	Butte County
	Chico GP	GP	City of Chico	2013	as-needed	City of Chico
	Gridley GP	GP	City of Gridley	2010	as-needed	City of Gridley
	Marysville GP	GP	City of Marysville		as-needed	City of Marysville
	Oroville GP	GP	City of Oroville	2009	as-needed	City of Oroville
	Local Hazard Mitigation Plan	other	Butte County	2014	as-needed	Butte County
	Flood Planning Process	other	County P.W. Department		as-needed/ongoing	
	Butte County Flood Mitigation Plan	other	Butte County	2009	5 year progress report	Butte County
	Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan	other	Butte County	2007	every 5 years	Butte County
	Drought Response Plan	other	County Drought Task Force			
	Integrated Water Resource Program	other	Butte County	2005	as-needed	Butte County
	Butte County Climate Action Plan	other	Butte County	2014	as-needed	Butte County, City of Chico, City of Gridley, City of Oroville, Paradise Irrigation District, Thermaito Water & Sewer District, City of Bugs/Butte Flood Control Agency, Town of Feather
	Butte Regional Conservation Plan	HCP/NCP	Butte County Association of Governments	2019 (Proposed)	TBD	Lawland Butte County, Cities of Chico, Oroville, Gridley, Biggs
	Update of the Thermaito Master Drainage Plans	other	Butte County / City of Oroville	2009	as-needed	Thermaito area and the City of Oroville
	Upper Feather River RWM Plan	RWM	UFR RWM RWM/	2016	as-needed	Portion of UFR RWM region in Butte County
	Big Chico Creek Watershed Alliance Watershed Management Strategy	Watershed MP	Big Chico Creek Watershed Alliance	2006	as-needed	Big Chico Creek watershed
	Big Chico Creek and Little Chico Creek Watersheds	SWMP	City of Chico	2016	as-needed	Big Chico Creek, Rock Creek, Sycamore Creek, Mud Creek, Little Chico Creek and Commerce Creek watersheds
	Storm Water Resource Plan					
	Butte Creek Watershed Mgt Plan	Watershed MP	Butte Creek Watershed Conservancy	2003	Review Recommendations Annually	Butte Creek Watershed
Colusa	AB3030 Colusa Colusa	GWMP	Colusa Colusa Irrigation District (CCID)	1993	Annual Status Report	Colusa Colusa Irrigation District
	RD 108 GWMP	GWMP	RD 108	2008		RD 108
	AB3030 Westside-WD	GWMP	Westside Water District			
	AB3030 PDI104	GWMP	RD 1104			
	Prosvect & AB3030	GWMP	Prosvect Irrigation District			
	AB3030 Prosvect-Colusa-Barnett Irrigation	GWMP	P-C-B Irrigation District			
	Colusa County GWMP	GWMP	County Water Resources Dept*, Colusa County Groundwater Commission	2004	As funding is available	Colusa County Watershed
	Colusa Basin Watershed Assessment	other	Colusa County RCD	2008		Colusa Basin Watershed
	Colusa Basin Watershed Management Plan	Watershed MP	Colusa County RCD	TBA Jan. 2015	As funding is available and watershed resources change	Colusa Basin Watershed
	City of Colusa GP	GP	City of Colusa	2012	as required	City of Colusa
	Colusa County GP	GP	County Planning and Building	2012	as required	Colusa County
	Comprehensive SCD Water Resource Plan	other	Colusa Colusa Irrigation District (CCID)	2010	as required	Colusa County
	Colusa Basin Watershed Streambank Analysis	other	Colusa County RCD	2010	as required	Colusa Basin Watershed
	Bear Creek Watershed Assessment	other	Colusa County RCD	2010	as funding is available	Bear Creek Watershed
	City of Colusa Emergency Master Plan	GP	City of Colusa	2009	as required (part of GP)	City of Colusa
	City of Colusa GP	GP	City of Colusa	2007	as required	City of Colusa
	Glenn County GWMP	GWMP	Glenn County	2012	as funding is available	Glenn County
	AB3030 Colusa Area	GWMP	Glenn County	2002	as funding is available	Glenn County
	Glenn-Colusa Irrigation District GWMP (AB3030)	GWMP	Glenn-Colusa Irrigation District (GCD)	1993	as funding is available	Glenn-Colusa Irrigation District
	AB3030 Prosvect-Colusa-Barnett Irrigation	GWMP	P-C-B Irrigation District		as funding is available	
	Western Canal AB3030	GWMP	Western Canal		as funding is available	
	Water Supply Assessment for TCCO	WSA			as funding is available	
Willows GP	GP			as funding is available		
CityWater Willows UWMP	UWMP	California Water Service Company	2016	every 5 years	City of Willows	
Oroville GP	GP	City of Oroville	2012	as funding is available	City of Oroville	
Glenn County GP	GP	Glenn County	1993	as funding is available	Glenn County	
AB3030 Prosvect IC	GWMP	Prosvect Irrigation District		as funding is available	Prosvect Irrigation District	
Shasta	Coordinated GWMP for the Redding Groundwater Basin	GWMP	Shasta County Water Agency	2009	as funding is available	Redding Groundwater Basin
	ACD GWMP	GWMP	Anderson-Cottonwood Irrigation District (ACID)	2006	as funding is available	
	City of Redding UWMP	UWMP	Redding	2016	every 5 years	City of Redding
	Shasta County GP	GP	Shasta County	2004	Annual Status Report	Shasta County
	Redding GP	GP	City of Redding	2000	Annual (minor/technical) updates	City of Redding
	Redding Area Basin Water Supply Assessments	WSA	Shasta County Water Agency	2003		
	Redding Area Watershed Sanitary Survey	other	Shasta County Water Agency	2016	every 5 years	Redding Basin, Clear Creek Watershed
	City of Shasta Gas UWMP	UWMP	Shasta	2015	every 5 years	City of Shasta Lake
	Joint Hazard Mitigation Plan	other	City of Anderson and County of Shasta	2011		Shasta County and City of Anderson
	County GWMP	GWMP	Sutter County	2012	as needed	Sutter County
Yuba	Sutter & Extension Water District GWMP	GWMP	Sutter Extension WD	1996	as needed	Sutter Extension WD
	Feather Water District GWMP	GWMP	Feather Water District	2005	as needed	Feather Water District
	RD 1500 GWMP	GWMP	RD 1500	1982	as needed	RD 1500
	RD 797 GWMP	GWMP	RD 797	2005	as needed	RD 797
	Yuba City UWMP	UWMP	Yuba City	2016	every 5 years	Yuba City
	Sutter County GP	GP	Sutter County	2011	every 5 years	Sutter County
	Yuba City GP	GP	Yuba City	2004	every 5 years	Yuba City
	City of Live Oak	GP	Live Oak	2011	as needed	City of Live Oak
	County Master Drainage Plan	other	Sutter County	Feb. Jan. 2013	as needed	Sutter County
	Multijurisdictional Mitigation Plan	other	Sutter County	2007	every 5 years	Sutter County
Tehama	Tehama County GWMP	GWMP	Tehama County Flood Control and Water Conservation District	2015	as needed	Tehama County
	El Camino Irrigation District GWMP	GWMP	El Camino Irrigation District	1995	as needed	El Camino Irrigation District
	Red Butte UWMP	UWMP	City of Red Butte Dept of Public Works	Feb. 2011	every 5 years	City of Red Butte
	County Water Supply Inventory	WSA	Tehama County Flood Control and Water Conservation District	2003	as needed	Tehama County
	Tehama County GP	GP	Tehama County	2002	Annual Status Report	Tehama County
	Red Butte GP	GP	City of Red Butte	2014	Annual Status Report	City of Red Butte
	Corning GP	GP	City of Corning	2015	Annual Status Report	City of Corning
	Tehama GP	GP	City of Tehama	2010	Annual Status Report	City of Tehama
	County Emergency Response Plan	other	Tehama County Sheriff's Office	2017		Tehama County
	Tehama County Hazard Mitigation Plan Vol2- Planning Partner Annexes	other	Tehama County	2016	every 5 years	Tehama County
Tehama County Hazard Mitigation Plan Vol1- Planning Area-Water Elements	other	Tehama County	2016	every 5 years	Tehama County	

Proposition 1 - 2016 IRWM Program Guidelines specifies the IRWM Plan should discuss the processes that it will use to incorporate Storm Water Resource Plans. Section 5.4.6 of the 2014 Plan describes Other Resource Management Planning efforts including flood protection, watershed management, multipurpose planning, storm water management etc. The following amends Section 5.4.6 to describe the inclusion of storm water management planning efforts into the NSV IRWM Plan.

The City of Chico and Yuba City have developed storm water resource plans that have been adopted into the NSV IRWM Plan. The City of Redding's plan is still in development but its consideration for adoption by the NSV is expected in 2020. County NSV TAC members participated in development of these plans to ensure consistency with the Goals and Objectives of the 2014 Plan. It is anticipated that each of the storm water resource plans will be included as appendices in the Plan after their development is complete.

Amendments to Section 5.5: Relation to Local Land Use Planning

IRWM 2016 Plan Standard: Demonstrate information sharing and collaboration with regional land use planning in order to manage multiple water demands throughout the state, adapt water management systems to climate change, and potentially offset climate change impacts to water supply in California.

Relation to local land use planning and water management in the NSV region is predominately discussed in Section 5.5 of the 2014 Plan. In addition, Chapter 3 discusses coordination with various agencies, including State, federal, and local agencies. Section 5.5 discusses relation to local land use planning and outlines the results of a survey that was conducted to determine the relationship between local land use planners and water resource managers at that time.

The following amends Section 5.5 to further describe collaboration in the region in relation to local land use planning. In addition to what is outlined in multiple sections throughout the 2014 Plan, it is expected that County staff from the NSV TAC will coordinate with land use planners in cities, various county departments, special districts, Groundwater Sustainability Agencies, Tribes, and other stakeholders in their respective counties on a variety of issues to ensure these goals are met. For example, during the most recent drought, several counties implemented Drought Task Forces, which included a variety of staff from counties, state, and local agencies. The task forces were typically a function of Office of Emergency Services. Information sharing and collaboration also takes place during project evaluation during specific funding opportunities.

The Central Valley is prone to flooding. The Central Valley Project and State Water Project have addressed major issues along the Sacramento and Feather Rivers, but many tributaries are still prone to flooding. On June 9, 2014, the NSV adopted the Mid and Upper Sacramento River Regional Flood Management Plan and Feather River Regional Flood Management Plan and brought those projects into the NSV Plan. However, each city and county is still responsible for land use decisions in its boundaries. The NSV supports the continued improvement of Federal Emergency Management Agency Flood Insurance Studies and Rate Maps, which are the basis of local regulation. Even so, the February 2017, management failures at Oroville Dam led to the evacuation of populations in low-lying areas, demonstrating the importance of

Hazard Mitigation Plans and emergency response in general. Coordinating climate change response is more critical as weaknesses in the flood infrastructure are highlighted by changing weather patterns.

2018 brought the Carr, Mendocino Complex and Camp Fires to the NSV. These fires destroyed entire communities and brought immediate impacts in the forms of evacuations and poor air quality. There are lingering impacts to water quality, displaced populations, and economic viability of local water and wastewater treatment systems. These events and other like them may be viewed as the intersection of climate change, long-term forest management practices and local zoning. The NSV support the inclusion of forest management projects in the Plan and will watch the redevelopment of affected communities to see what lessons can be learned and shared.

The results of the survey presented in the 2014 Plan indicate an absence of formal forums for this type of coordination; however, it is quite common for water managers and land use planners to work together informally. Many land use planning and water manager individuals are included in the email distribution of NSV meeting announcements. Each NSV TAC and NSV Board meeting include an item for County Staff NSV TAC members to provide updates on implementation of SGMA. There is also an item that members of the public or Board members can provide relevant updates. Agency representatives on the NSV Board and the NSV TAC create relationships with other agency representatives, with Tribes, and with public that attend meetings that enable future planning conversations to occur more readily.

VI. General Amendments Addressing Climate Change

Climate change is discussed throughout the 2014 Plan. The potential effects of climate change is discussed in Section 1.4.3 and potential water quality changes caused by climate change is explored in Section 1.5.3.1. Adapting to climate change is also mentioned as an objective in Goal 2: Flood Protection and Planning (Section 2.5.4). Climate Change Vulnerability is discussed in greater detail in Chapter 4 including Section 4.3.1 Climate Change Vulnerability Assessment and Section 4.3.2 Prioritization of Potential Climate Change Vulnerabilities. The Climate Change Sensitivity Survey Scoring Sheet is included as Table 4-5 and Figure 4-1 outlines the process for assessing vulnerability to climate change as part of an IRWMP. These sections discuss the extreme variability over the past 150 years of climate records. The 2014 Plan recognized the need to focus on variable hydrology and rising temperatures and indicates its plan to address climate change by using the four step approach provided in the DWR Climate Change Handbook for Regional Water Planning, 2011. Additionally, the 2014 Plan also considers climate change vulnerability and greenhouse gas (GHG) emissions in the project review process included in this appendix in the amendments to Chapter 5. The seven areas of potential climate change vulnerability are scored in Section 4.3.1 and prioritized in Section 4.3.2. Table 4-5 summarizes that the NSV region is potentially most sensitive to water supply and flooding impacts that may be exacerbated by climate change.

IRWM 2016 Plan Standard: Areas of the State that receive water imported from the Sacramento-San Joaquin River Delta, the area within the Delta, and areas served by coastal aquifers must also consider the effects of sea level rise (SLR) on water supply conditions and identify suitable adaptation measures.

This requirement is not applicable to the NSV Region.

IRWM 2016 Plan Standard: Contain a plan, program, or methodology for further data gathering and analysis of prioritized vulnerabilities.

The following amends Chapter 4 to specify a plan to gather data, assess and prioritize vulnerabilities.

4.3.3 Future Updates to Potential Climate Change Vulnerabilities Assessment

The exercise of prioritizing potential climate change vulnerabilities may need to be updated in the future as new information becomes available. The NSV TAC will conduct a periodic review as needed to each of the Climate Change Questions presented from the Climate Change Vulnerability Checklist in the DWR Climate Change Handbook for Regional Water Planning, 2011 (<http://www.water.ca.gov/climatechange/CCHandbook.cfm>). The questions will be reviewed to determine if changes to the vulnerability assessment are needed. If such items have changed, the NSV TAC will consider the need to gather more data and analysis using the most current, relevant, scientific sources available at that time. After the review, the NSV TAC will provide relevant updates and recommendations to the NSV Board for their consideration.

IRWM 2016 Plan Standard: Address adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge.

This requirement is addressed throughout the 2014 Plan and these amendments as it relates to, and is a requirement of several IRWM Plan Standards. This is specifically called out in Goal 1-1a, Adapting to changes in the amount, intensity, timing, quality, and variability of runoff and recharge. Section 4.3 Climate Change Vulnerability, also examines anticipated changes in the intensity, timing, quality and variability of runoff and recharge associated with increased frequency of flood and drought so that appropriate adaptive strategies may be developed at a regional level. It is anticipated that County staff from the NSV TAC will coordinate water adaptive strategies with cities, various county departments, special districts, Groundwater Sustainability Agencies, Tribes, and other stakeholders in their respective counties to ensure that the important, relevant elements of the local planning documents are incorporated into the regional strategies.

VII. Amendments to Chapter 6: Implementation Strategy

IRWM 2016 Plan Standard: Ensure efficient use of available data, access to data, and to ensure the data generated by IRWM implementation activities can be integrated into existing State databases.

Section 6.1 of the adopted Plan addresses available data sources, access and integration into State databases. This Update to the Plan contains specific sources of information regarding nitrate, arsenic and other water quality concerns; and Section III contains specific areas where data development may be beneficial to disadvantage communities.

As noted in Chapter 6 of the adopted Plan, budget constraints limit the availability of NSV staff to provide full-service data tracking. The NSV therefore supports the DWR's proposed GIS website to provide information related to NSV projects, projects in adjoining IRWMs and looks forward to using this tool to

develop inter-IRWM projects. As the GIS site is developed, QA/QC methods will be devised and local, NSV protocols will be developed and adopted to ensure accurate and timely inclusion.