



BUTTE COUNTY WATER COMMISSION

REGULAR MEETING

AGENDA

DECEMBER 4, 2024

1:30 PM

MEMBERS OF THE COMMISSION

DONNA BAYLISS, DISTRICT 1

TOVEY GIEZENTANNER,

DISTRICT 2

AIMEE RAYMOND, DISTRICT 3

FRED MONGOMERY, DISTRICT 4

MAUNY ROETHLER, DISTRICT 5

DISTRICT WATER LANDOWNERS

MATTHEW TENNIS

DONNIE STINNETT

PRIVATE WELL LANDOWNERS

DAVIN ARVONEN

GEORGE "ERNIE" WASHINGTON

KAMELA LOESER, DIRECTOR
308 NELSON AVENUE
OROVOLLE, CA 95965
TELEPHONE: 530.552.3595
FAX: 530.538.3807
Email: bcwater@buttecounty.net
www.butte.county.net/1117/water-resource-conservation

MEETING LOCATION

**BOARD OF SUPERVISORS CHAMBERS
25 COUNTY CENTER DRIVE, SUITE 205
OROVILLE, CALIFORNIA**

1. CALL TO ORDER

2. APPROVAL OF MINUTES

a. *Approval of the Minutes

Action requested: review and approve the August 7, 2024, meeting minutes.

3. PUBLIC MEMBERS WISHING TO ADDRESS THE COMMISSION ON ITEMS NOT LISTED ON THE AGENDA

The Water Commission is prohibited by law from taking action on any item presented if it is not listed on the agenda. Comments will be limited to three (3) minutes per person.

4. PRESENTATIONS

a. Presentation and Discussion of the Paradise Sewer Project (Marc Maddox, Public Works Director, Town of Paradise)

Staff from the Town of Paradise, Public Works Department, will provide an overview of the project.

Action requested: discuss and provide feedback.

b. *Discussion and possible recommendation on the selection of up to four irrigation surface water supply projects for the Vina Subbasin that will progress to a fatal flaw analysis. (Jenny Scheer and Maddie Munson, Water and Land Solutions)

The Commission will receive a presentation on the list of projects considered and proposed projects to proceed to more in depth evaluation and fatal flaw analysis.

Action requested: recommend up to four projects for the fatal flaw analysis

5. UPDATES

- a. *Update on Sustainable Groundwater Management Grant Program Projects (Christina Buck, Water & Resource Conservation)**

Staff will provide an update on key highlights of Sustainable Groundwater Management Grant funded projects.

Action requested: information only

- b. Staff Update on 2025 Water Commission appointments (Kamie Loeser, Water & Resource Conservation)**

Staff will present an update on Water Commission seats scheduled for reappointment in 2025 and outline the application process for interested candidates.

Action requested: discuss and provide feedback.

6. OTHER BUSINESS

7. FUTURE MEETING DATES AND AGENDA ITEMS

- a. *2025 Water Commission Calendar (Kamie Loeser, Water & Resource Conservation)**

Staff will review a draft Water Commission schedule for 2025.

Action requested: review and approve the 2025 meeting schedule.

- b. Date and Location of the Next Meeting:
February 5, 2025, 1:30 pm
Butte County Board of Supervisors Chambers
25 County Center Drive, Oroville**

- c. Requests of the Water Commission for Future Agenda Topics**

8. COMMISSIONERS WISHING TO ADDRESS ITEMS NOT LISTED ON THE AGENDA

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

9. *COMMUNICATIONS RECEIVED AND FILED

Copies of all communications are available at the Butte County Department of Water and Resource Conservation, 308 Nelson Avenue, Oroville, California, and are attached in the agenda packet.

- a. *Communications Received and Referred to the Butte County Water Commission**

10. ADJOURNMENT

Members of the public may attend in person or view the Water Commission remotely as view only.

Provide Public Comment - Members of the public can submit public comment in one of two ways:

1. In person by attending the meeting at 25 County Center Drive.
2. Email BCWater@ButteCounty.net. When submitting public comment via email, please indicate the item number your comment corresponds to in the subject line. Comments submitted before 12:00 p.m. (noon) will be sent to the full Water Commission electronically prior to the start of the meeting; while comments submitted after 12:00 p.m. will be read into the record at the end of the corresponding item number. Comments received after an agenda item has been heard will be made part of the record if received prior to the end of the meeting.

Comments are limited to one comment, per item, per attendee and are to be no more than three minutes in length.

Individuals who need special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the meeting materials, should contact BCWater@buttecounty.net as soon as possible to ensure arrangements for accommodation.

The video of the Water Commission meeting and related materials will be posted at <https://www.buttecounty.net/1221/Water-Commission>



P.O. BOX 2657, 643 "J" STREET, LOS BANOS, CALIFORNIA 93635 · WWW. WATERANDLANDSOLUTIONS.COM

Memorandum

To: Butte County Water Commission
From: Jenny Scheer and Maddie Munson, Water & Land Solutions, LLC (WLS)
Date: December 4, 2024
RE: Vina Subbasin – Surface Water Supply Projects

The Vina Subbasin Surface Water Supply Project evaluates the potential for expanded surface water use for irrigation to reduce groundwater pumping in the Vina Subbasin. The role of the Water Commission at its December 4, 2024 meeting is to review the potential surface water supply projects and recommend up to four projects to proceed to fatal flaw analysis. The projects selected should be those that are optimal considering factors like site suitability, water availability, legal aspects, and sustainability goals. The ultimate goal of this Project is to identify two potential surface water supply projects and develop feasibility studies for those projects. In Spring 2025, fatal flaw analyses will be presented to the Butte County Water Commission for selection of two potential projects to proceed to feasibility studies. This Project is funded by the Sustainable Groundwater Management Grant received from the California Department of Water Resources and is implemented by Butte County through Geosyntec/Water and Land Solutions, LLC.

Fatal flaw analysis – A fatal flaw analysis identifies potential challenges that could prevent a project from being implemented. In this context, it includes an intermediate level of project information to eliminate weaker alternatives and refine the two strongest projects ultimately selected for feasibility studies. The fatal flaw analysis report will evaluate water conveyance, place of use options, environmental concerns, financing options, and water right concerns.

Feasibility study – A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of a proposed venture. In this context, the feasibility studies will address critical facets of each project, provide reconnaissance-level project designs, develop cost estimates to quantify a dollar per acre-foot cost-benefit ratio for each project, and will be developed so as to be useable for future grant applications for implementation.

Project Descriptions

- 1. Sacramento/ Feather River exchange** – Unused water from water rights held on the Feather River or stored in Lake Oroville could be purchased and exchanged for diversion off the Sacramento River. Options to be explored with the State Water Resources Control Board (SWRCB) could include short-term or long-term in-county transfers. Such an exchange would leverage existing surface water rights in Butte County that are outside of the Vina Subbasin, without the need for new major water conveyance.

An exchange would require approvals from the SWRCB, California Department of Water Resources (DWR), and the U.S. Bureau of Reclamation (USBR), at a minimum. In addition, approvals from USBR, California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the U.S. Army Corps of Engineers would likely be needed for new diversion facilities on the Sacramento River.

Potential existing water sources include Butte County's Table A State Water Project contract or surplus water supplies from South Feather Water and Power Agency (SFWPA), Paradise Irrigation District (PID), or another local irrigation district such as Western Canal Water District (WCWD) or one of the Joint Districts in Butte County (including Biggs-West Gridley Water District, Butte Water District, and Richvale Irrigation District). A long-term lease agreement may be of interest for Table A water, whereas local water districts with excess water would most likely be interested in a shorter term agreement between one and five years. Although these water rights holders can transfer water south of the Delta (SOD) for a higher price per acre-foot, transfers through the Delta are increasingly complicated and less frequent.

New pipelines or canals to deliver water from the Sacramento River to farmland in the northern part of the Vina Subbasin would be needed, and on-farm improvements would likely be required for farmers to incorporate this water source into their irrigation systems. Permitting and construction of new diversions would be costly and time consuming, but given the number of local water rights holders with surplus water supplies totaling tens of thousands of acre-feet, this option provides great potential.

Recommendation: Proceed to fatal flaw analysis

- 2. Feather River/ Butte Creek exchange** – Excess water from water rights held on the Feather River or stored in Lake Oroville could be imported to Butte Creek through Pacific Gas & Electric's (PG&E) canals—or potentially a new canal—for diversion off Butte Creek.

Water is already imported from the West Branch of the Feather River to Butte Creek, providing critical flows in the summer months, supporting California's last and best run

of spring run Chinook salmon. Additional flows in upper Butte Creek could potentially increase salmon survival. However, fisheries interests have raised concerns with importation of additional surface water from the Feather River to Butte Creek, as the comingling of foreign water may confuse spawning signals for salmon. Consultation or approval would be needed from the SWRCB, DWR, and CDFW. In addition, there is some degree of uncertainty about the reliability of future flows on Butte Creek.

Existing conveyance and distribution systems—such as those owned by Durham Mutual Water Company (MWC), Rancho Esquon, or the Parrott-Phelan Canal—could be utilized, reducing the need for capital investment. Potential water sources are the same as those discussed in Project 1 above and could include short-term or long-term in-county transfers.

Recommendation: Proceed to fatal flaw analysis

- 3. Feather River-South Vina extension** – This project proposes transferring water from water rights held on the Feather River or stored in Lake Oroville through WCWD’s main canal and new pipelines or canals to target areas in the Vina Subbasin. This approach minimizes the need for extensive new infrastructure by leveraging existing conveyance facilities, significantly reducing capital costs compared to other projects. New pipelines or canals to deliver water from WCWD’s main canal to farmland in the southern part of the Vina Subbasin would be needed, and on-farm improvements would likely be required for farmers to incorporate this water source into their irrigation systems.

Recommendation: Proceed to fatal flaw analysis

- 4. Maximize existing Butte Creek water rights** – Delivery of existing water rights on Butte Creek could be maximized for agricultural irrigation. Water right holders include Durham Mutual Water Company, Dayton Mutual Water Company, and Rancho Esquon. However, based on initial discussions with stakeholders, most existing water rights on Butte Creek are maximized given water availability, and additional flow in Butte Creek from imported water would be needed to increase water deliveries from the creek.

Dayton Mutual Water Company does hold promise, with 9-10 cfs currently unused that can be conveyed through the Parrot-Phelan canal. If 10 cfs was applied for irrigation for 120 days, it could reduce groundwater pumping by 2,380 acre-feet. To make use of this unused surface water, on-farm irrigation equipment such as filters and potentially a reservoir and/or booster pump would be needed.

Recommendation: Proceed to fatal flaw analysis

- 5. Oroville-Chico Pipeline** – Excess water from water rights held on the Feather River or stored in Lake Oroville (including but not limited to Table A) could be delivered to the Vina Subbasin through a new, dedicated pipeline or canal. Assuming the ultimate use of

the surface water is on lands not currently using surface water, extensive new distribution pipelines would also need to be built. On-farm improvements would likely be required by farmers to incorporate this water source into their irrigation systems. Water sources are the same as those discussed in Project 1 above.

Prior iterations of this project have been considered over the years, however, they were grander in scale and the Sustainable Groundwater Management Act (SGMA) provides additional motivation for such a project. Nonetheless, this is likely one of the most capital intensive of the projects considered.

Recommendation: Do Not proceed to fatal flaw analysis

- 6. Paradise-Chico Intertie** – The Vina GSP anticipates 27,500 acre-feet of urban and industrial water use through 2070, indicating sufficient urban water demand in the city of Chico to make use of available surface water from Paradise Irrigation District, PG&E’s Miocene Canal water right, or other potential supplies in the Paradise area.

According to the 2022 Paradise Options Study, Paradise has 3,000 to 5,000 acre-feet of water available for transfer each year. Treated water from Paradise Irrigation District’s water treatment plant in Magalia could be delivered to the city of Chico via a new pipeline, which could potentially be constructed concurrently with the Paradise Sewer Project, if it proceeds. This option requires retrofits to Magalia Dam and spillway (estimated at \$163 million) and may require expansion or modification of PID’s water treatment plant to deliver water to the city during normal and wet years. The cost of the Chico intertie is estimated at \$372 million.

By adding a surface water source to Chico’s water supply portfolio, this project improves water supply reliability and resiliency for the city of over 100,000 people. California Water Service (Cal Water) is the water purveyor in Chico and would need to be engaged in the project if it proceeds to fatal flaw analysis. Paradise Irrigation District has indicated they are not interested in pursuing this project at this time.

Recommendation: Do Not proceed to fatal flaw analysis

- 7. Other local creeks** – Water right permits could be sought for other local creeks, including Pine Creek, Mud Creek, Rock Creek, Dry Creek, Big Chico Creek, Little Chico Creek, and Hamlin Slough. However, only Big Chico Creek is perennial, and all other creeks are ephemeral or seasonal with limited, if any, flow during the irrigation season. Given the timing and infrequency of flows, direct recharge from these creeks is most suitable.

Recommendation: Do Not proceed to fatal flaw analysis

8. Sacramento River riparian rights – Landowners in the Vina Subbasin who are adjacent to the Sacramento River and are not currently exercising their riparian Sacramento River water rights could begin exercising those rights instead of pumping groundwater. Diversion infrastructure to remove water from the Sacramento River may need to be constructed or upgraded and on-farm improvements would likely be required for farmers to incorporate this water source into their irrigation systems. However, riparian rights can be significantly limited. Diversions may only be applied to lands contiguous to the river and past sales of land—even if a ranch has since been reunited—can sever parcels from riparian water access. Given the expense of new diversions and the relatively small amount of acreage that can be served by riparian water, this project option is not preferred.

Recommendation: Do Not proceed to fatal flaw analysis

9. New water right application – A new water right application could theoretically be sought for Butte Creek, the Feather River, or the Sacramento River. Developing a new water right would also require new diversions, conveyance, and distribution systems to deliver the water. However, given the timing of this project with its focus on irrigation supplies from roughly April to October, none of those waterbodies are deemed to regularly have available water supplies in those months. The waterbodies are all part of the larger Sacramento-San Joaquin Delta watershed, which is effectively viewed as fully appropriated in the summer months in all but the wettest of years. Applying for a new water right is not considered to be a viable option, and certainly not a preferred alternative to the projects recommended for fatal flaw analysis.

Recommendation: Do Not proceed to fatal flaw analysis

Vina Subbasin – Surface Water Supply Projects

Butte County Water Commission – December 4, 2024

Project	Water Source	Partners/ Responsible Agencies	Diversion/ Conveyance	Distribution	Cost	Potential Volume (AFY)	Timeline	Challenges
1. Sacramento/ Feather River exchange	Feather River water right diverted from Sac River	USBR, DWR, SWRCB, Landowners, TWD	New diversion on Sac River	Extensive new pipelines or canals needed to deliver the water to farmland in North Vina.	Mid	30,000	Slow	Requires SWRCB, USBR, and DWR approval. New pipelines would require easements.
2. Feather River/ Butte Creek exchange	Feather River water right diverted into Butte Creek	SWRCB, CDFW, Butte Creek Watermaster, Friends of Butte Creek, USFWS, TWD	Use existing diversion points. May require increasing capacity and new pipelines.	Use existing infrastructure of water rights holders such as Durham MWC, Parrott- Phelan Canal, WCWD, or Rancho Esquon	Low	30,000	Slow	Impact to salmon from moving water between watersheds. Butte Creek projects uncertain due to concern about SWRCB intervention. Limitations of PG&E canal capacity.
3. Feather River - South Vina extension	Table A, Miocene, WCWD, Joint Districts, SFWPA, PID	WCWD, TWD	Use existing WCWD canals plus new pipelines/canals to convey water	New pipelines or canals needed to deliver the water to farmland in the southern portion of Vina Subbasin.	Mid	30,000	Mid	Easements
4. Maximize existing Butte Creek water rights	Durham MWC, Dayton MWC	Butte Creek Watermaster, SWRCB, Rancho Esquon	Use existing diversions	Use existing on-farm and district distribution	Low	2,380	Fast	Most existing rights are fully exercised. Environmental interests would want any currently unused supply to remain in the creek.
5. Oroville - Chico pipeline	Feather River water right conveyed to farmland for irrigation or to city of Chico for municipal use	Butte County, WCWD, Joint Districts, SFWPA, PID, TWD, Cal Water, City of Chico	Minimum 10 miles of conveyance	Extensive new pipelines or canals needed to deliver water to farmland in South Vina.	High	30,000	Slow	Easements

Vina Subbasin – Surface Water Supply Projects

Butte County Water Commission – December 4, 2024

6. Paradise - Chico Intertie	PID, Miocene, other water sources for municipal use	PID, Cal Water, City of Chico	New pipeline from the ridge to Chico	Use existing Cal Water delivery system in Chico.	High	3,000-5,000	Slow	PID would need to fix Magalia Dam and may need to increase treated water capacity. PID indicated they are not interested in this project at this time.
7. Other local creeks	Pine, Mud, Rock, Dry, Big Chico, Little Chico, Hamlin Slough	SWRCB	New diversions would be needed	New distribution would be needed	Mid	0	Mid	Mostly ephemeral or seasonal and do not have water in them during the irrigation season. Big Chico Creek flows year-round.
8. Sacramento River riparian rights	Sacramento River	Landowners	New diversion on Sac River	New pipelines needed to deliver the water to irrigated farmland	Mid	1,800	Slow	Riparian rights severed in some instances, which reduces acreage that can be served per diversion.
9. New water right application	Butte Creek, Feather River, Sacramento River	SWRCB	New diversion(s)	New pipelines needed to deliver the water to irrigated farmland	Mid	0	Slow	Waterbodies are fully appropriated during the irrigation season in all but the wettest years

AFY – Acre-feet per year

Cal Water – California Water Service

CDFW – California Department of Fish and Wildlife

DWR – California Department of Water Resources

MWC – Mutual Water Company

PID – Paradise Irrigation District

PG&E – Pacifica Gas & Electric

Sac – Sacramento

SFWPA – South Feather Water and Power Agency

SOD – South of Delta

SWRCB – State Water Resources Control Board

TWD – Tuscan Water District

USBR – U.S. Bureau of Reclamation

USFWS – U.S. Fish and Wildlife Service

WCWD – Western Canal Water District

Revised December 3, 2024

Item 4b. Water Supply and Recharge Feasibility

Discussion and possible recommendation on the selection of up to four irrigation surface water supply projects for the Vina Subbasin that will progress to a fatal flaw analysis.

Water Commission
December 4, 2024
Christina Buck, Asst. Director

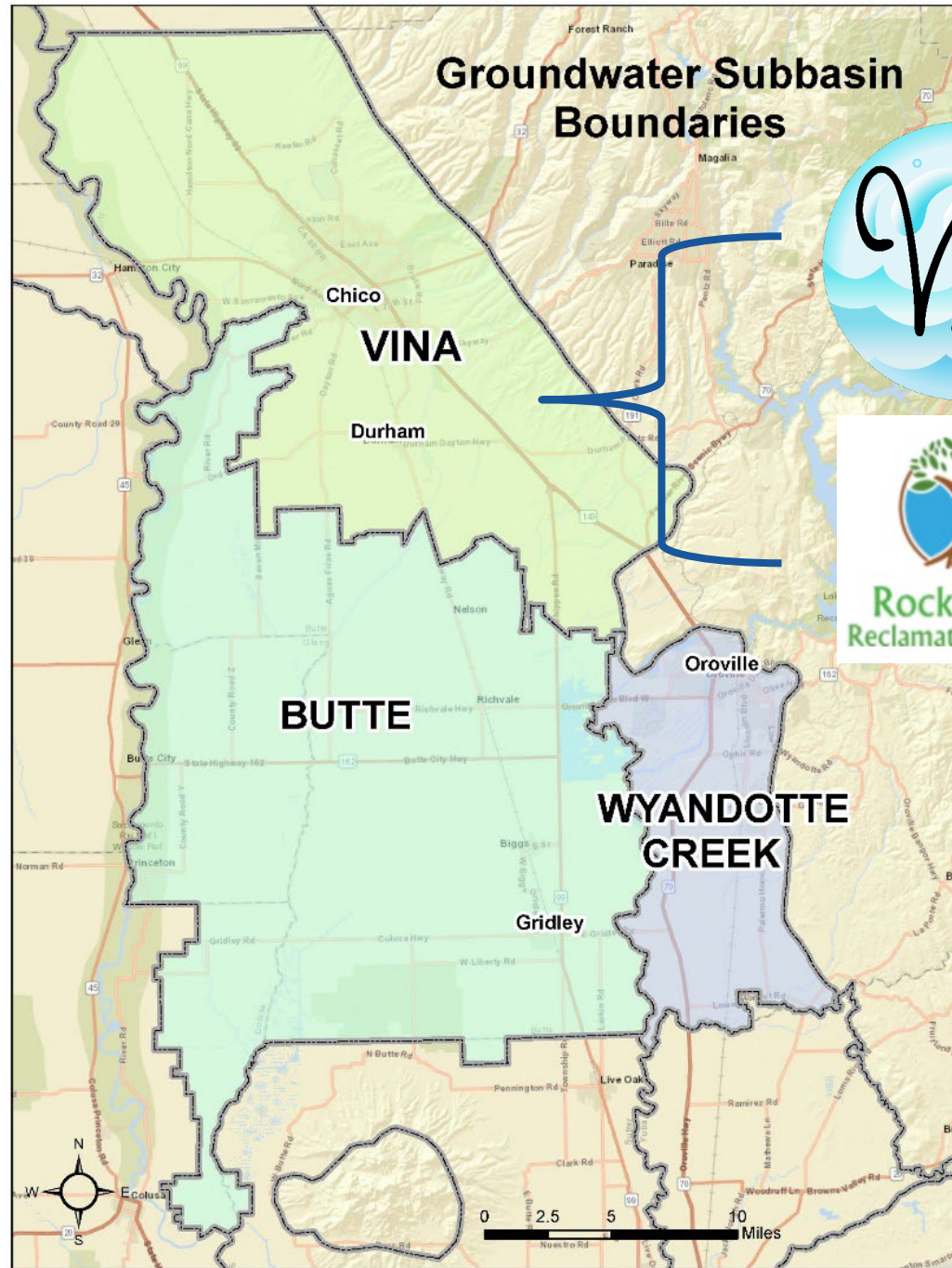
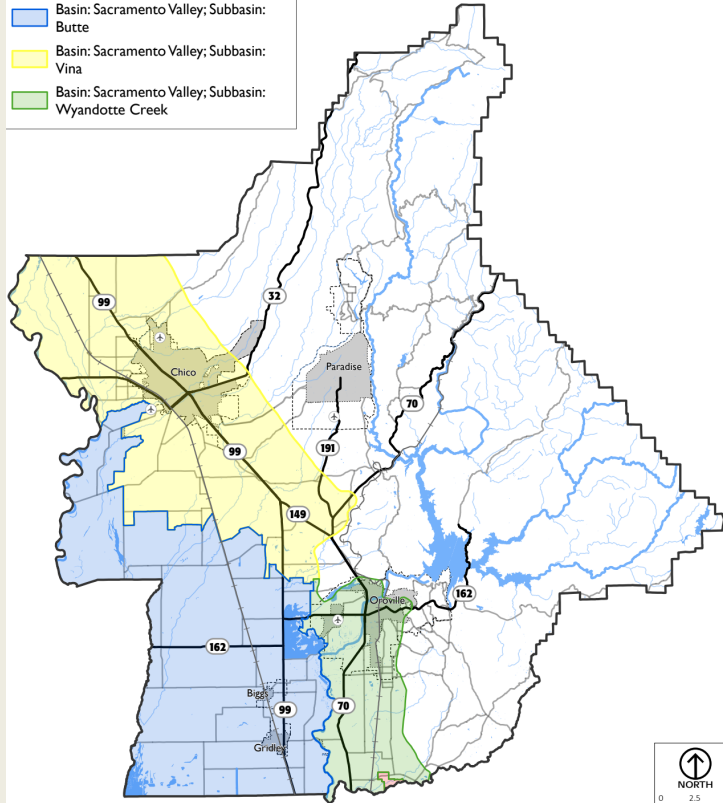


Water Supply and
Recharge Feasibility



Three Subbasins

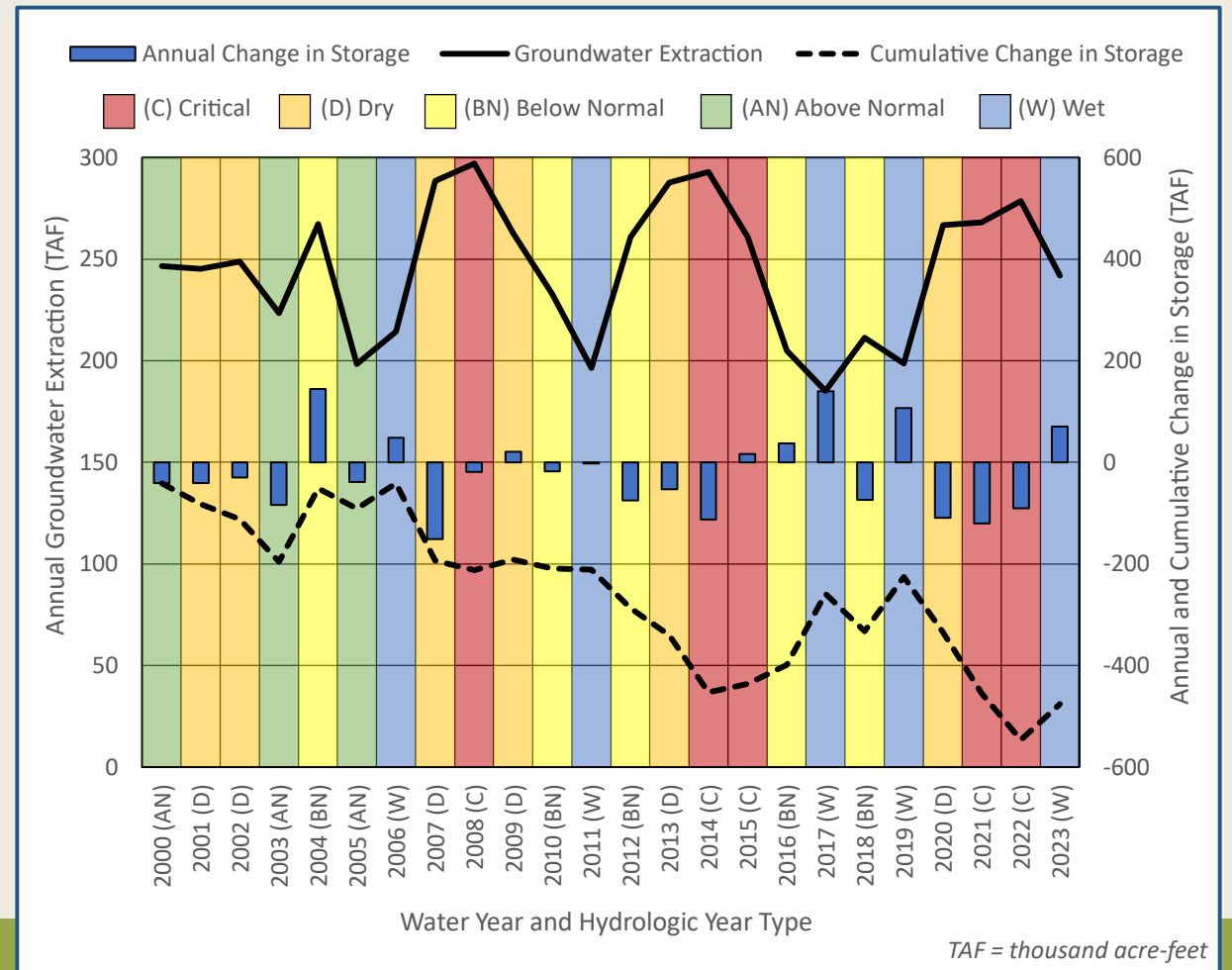
-  Basin: Sacramento Valley; Subbasin: Butte
-  Basin: Sacramento Valley; Subbasin: Vina
-  Basin: Sacramento Valley; Subbasin: Wyandotte Creek



Vina Subbasin



- High Priority Basin
- 90/10 groundwater/surface water
- Groundwater levels improved since drought
 - *Increased by 5 feet on average (2023 WY)*
- Long-term trend shows declining levels since 2000
- Action is needed to level off or improve groundwater conditions



Approach to Groundwater Sustainability



Grant Funded Projects



Funding End Date:
March 2026



Data Gap Identification and Data Improvement⁴



Demand Reduction Strategies¹



Lindo Channel Recharge Feasibility



Long-Term Fee Study



Water Supply and Recharge Feasibility



Inter-basin Coordination Analysis and Modeling



Outreach Program



Grant Administration

<https://www.vinagsa.org/sustainable-groundwater-management-grant-funded-projects>



Water Supply and Recharge Project

1. Identify two most promising water supply projects and complete feasibility analysis
2. Identify potential recharge pilot projects
 - Collect data at site
 - Conduct recharge, if feasible
 - Lessons learned



Anticipated Project Timeline



Water Supply Project Feasibility

Date	Event
Water Supply Project Feasibility	
July 29, 2024	Discussion of Water Supply and Recharge concepts with Interested Stakeholders
August 7, 2024	Butte County Water Commission- Introductory discussion of water supply projects and priorities
Fall 2024	Information gathering by consultant team – meetings with various stakeholders
December 4, 2024	Butte County Water Commission- Discussion of summary table of water supply projects and potential recommendation of four projects for Fatal Flaw Analysis
Spring 2025	Water Commission then Board of Supervisor meeting to identify two projects (from the four) for feasibility analysis
Mid-2025	Draft and Final Water Supply Projects Feasibility Study

Vina Subbasin – Water Supply Project

Butte County Water Commission

December 4, 2024

Jenny Scheer

Water and Land Solutions, LLC



Water Commission's role

- Select up to four projects today to proceed to fatal flaw analysis
- Next step in early 2025 will be to select two projects for feasibility studies
- Considerations:
 - water availability
 - water right concerns
 - legal and regulatory aspects
 - environmental concerns
 - sustainability goals
 - funding options

Recommended to proceed

- Feather River/Sacramento exchange
- Feather River/Butte Creek exchange
- Feather River-South Vina extension
- Maximize existing Butte Creek water rights

Not recommended to proceed

- Oroville-Chico Pipeline
- Paradise-Chico Intertie
- Other local creeks
- Sacramento River riparian rights
- New water right application

Potential water sources

- Butte County's Table A State Water Project contract
- PG&E's Miocene Canal water right
- South Feather Water and Power Agency
- Paradise Irrigation District
- Western Canal Water District
- Butte Water District
- Biggs-West Gridley Water District
- Richvale Irrigation District

Butte County Table A allocations

	SOD Allocation (%)	Butte County Allocation (acre-feet)	Frequency since 2014
Butte County allocation	0	3,000	
	5	3,000	3
	10	4,000	
	15	5,000	
	20	6,000	2
Butte County allocation = SOD allocation + 30%	25	15,125	
	30	16,500	
	35	17,875	1
	40	19,250	1
	45	20,625	
	50	22,000	
	55	23,375	
SOD allocation >60%, Butte County allocation = 100%	60	27,500	1
	65	27,500	
	70	27,500	
	75	27,500	1
	80	27,500	
	85	27,500	1
	90	27,500	
	95	27,500	
	100	27,500	1

Feather River/Sacramento exchange

- Water from Feather River or Lake Oroville
- Exchanged for diversion off the Sacramento River
- New pipelines or canals for distribution in the northern Vina Subbasin
- On-farm irrigation system improvements
- Agency approvals needed
 - State Water Resources Control Board
 - California Department of Water Resources
 - U.S. Bureau of Reclamation
 - California Department of Fish and Wildlife
 - U.S. Fish and Wildlife Service
 - National Marine Fisheries Service
 - U.S. Army Corps of Engineers

Recommended to proceed to fatal flaw analysis

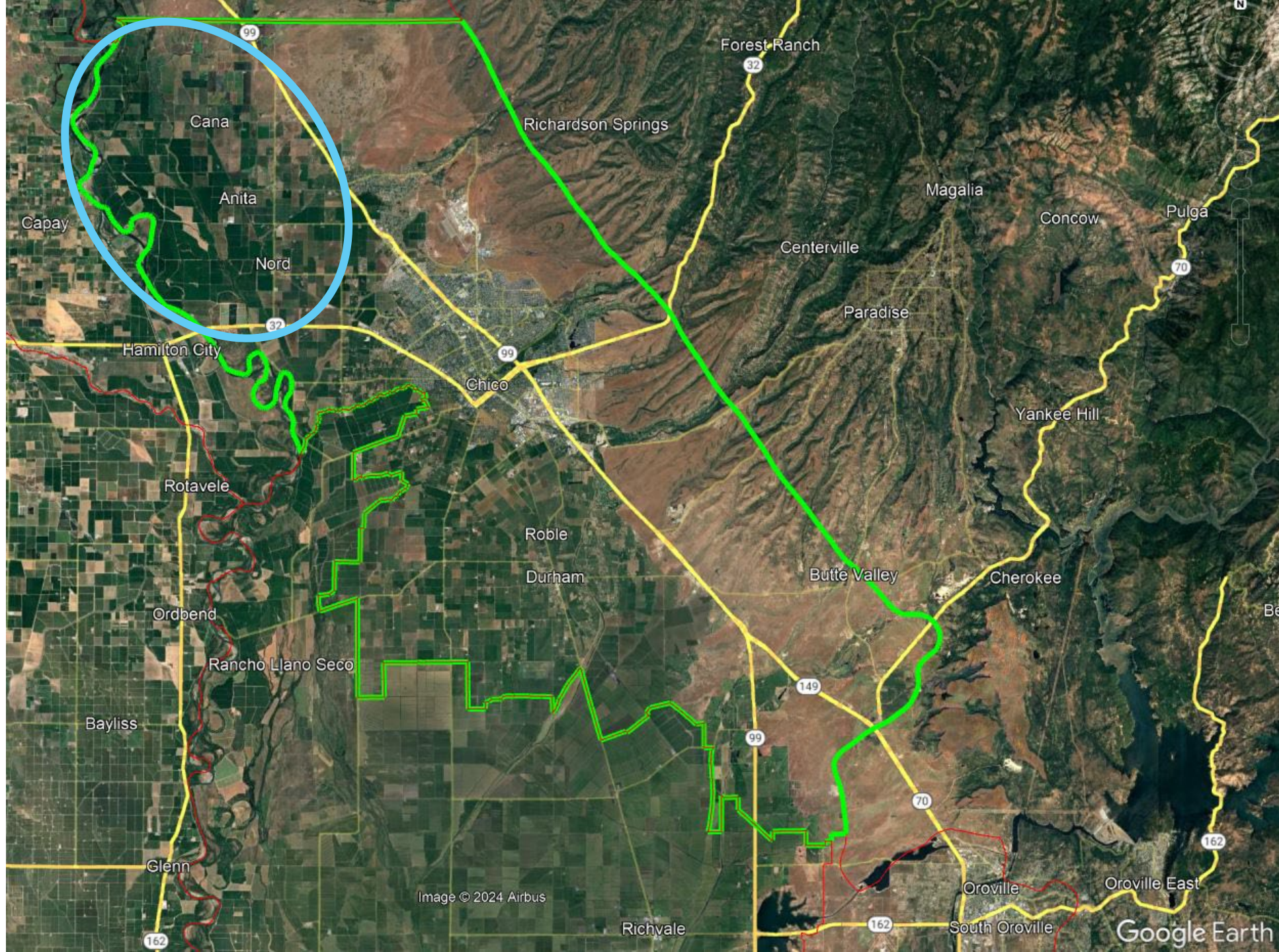


Image © 2024 Airbus

Google Earth

Feather River/Butte Creek exchange

- Water from Feather River or Lake Oroville
- Conveyed for diversion off Butte Creek
- Via Pacific Gas & Electric's (PG&E) canals
- Delivered through existing conveyance and distribution systems
 - Durham Mutual Water Company
 - Rancho Esquon
 - Parrott-Phelan Canal
- Agency consultation or approval
 - State Water Resources Control Board
 - California Department of Water Resources
 - California Department of Fish and Wildlife
 - Federal Energy Regulatory Commission

Recommended to proceed to fatal flaw analysis



Feather River-South Vina extension

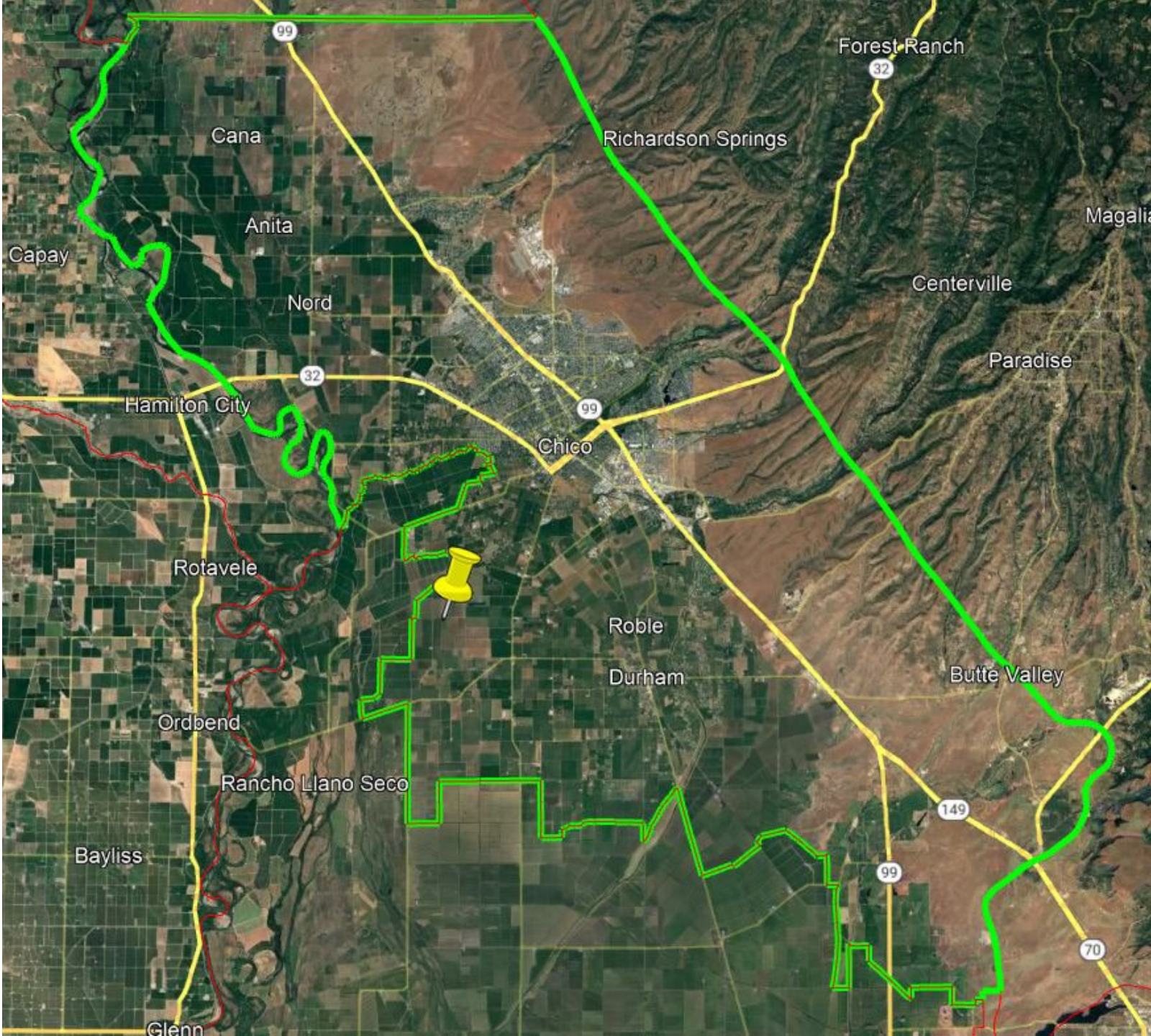
- Water from Feather River or Lake Oroville
- Conveyed through Western Canal Water District's main canal
- New pipelines or canals for distribution in the southern Vina Subbasin
- On-farm irrigation system improvements

Recommended to proceed to fatal flaw analysis

Maximize existing Butte Creek water rights

- Most existing water rights on Butte Creek are maximized
- Dayton Mutual Water Company has 9-10 cfs currently unused
- Would be conveyed through the Parrott-Phelan canal
- On-farm irrigation system improvements needed
- 10 cfs per day x 120 days = 2,380 acre-feet

Recommended to proceed to fatal flaw analysis



Oroville-Chico Pipeline

- Water from Feather River or Lake Oroville
- Conveyed to Vina Subbasin through a new, dedicated pipeline or canal
- New distribution pipelines or canals
- On-farm irrigation system improvements
- Capital intensive

Not recommended to proceed to fatal flaw analysis

Paradise-Chico Intertie

- Surface water from Paradise Irrigation District, PG&E's Miocene Canal water right, or other potential supplies in the Paradise area
- Treated at Paradise Irrigation District's water treatment plant in Magalia
- Delivered to the city of Chico via a new pipeline
- Estimated cost is \$372 million
- Paradise Irrigation District indicated they are not interested in pursuing this project at this time

Not recommended to proceed to fatal flaw analysis

Other local creeks

- Big Chico Creek is perennial, but flows are minimal during irrigation season
- Other local creeks are seasonal or ephemeral
 - Pine Creek
 - Mud Creek
 - Rock Creek
 - Dry Creek
 - Little Chico Creek
 - Hamlin Slough
- Direct recharge from these creeks is more suitable

Not recommended to proceed to fatal flaw analysis

Sacramento River riparian rights

- Landowners adjacent to the Sacramento River could exercise riparian rights
- Diversion infrastructure would need to be constructed or upgraded
- On-farm irrigation system improvements needed
- Riparian acreage is limited due to severed parcels

Not recommended to proceed to fatal flaw analysis

New water right application

- New water right application for Butte Creek, the Feather River, or the Sacramento River
- New diversions, conveyance, and distribution systems
- Waterbodies do not often have available supply during the irrigation season

Not recommended to proceed to fatal flaw analysis

Recommended to proceed

- Feather River/Sacramento exchange
- Feather River/Butte Creek exchange
- Feather River-South Vina extension
- Maximize existing Butte Creek water rights

Not recommended to proceed

- Oroville-Chico Pipeline
- Paradise-Chico Intertie
- Other local creeks
- Sacramento River riparian rights
- New water right application