

6 PROJECT AND MANAGEMENT ACTIONS

This chapter includes relevant projects and management actions information to satisfy California Code of Regulations (CCR) Title 23 § 354.42 and 354.44. The projects and management actions described in this chapter will help achieve the Vina Subbasin's sustainability goal.

6.1 Projects, Management Actions, and Adaptive Management Strategies

Achieving sustainability in the Subbasin requires implementation of projects and management actions. The sustainability goal of the Vina Subbasin is focused on maintaining a sufficient groundwater supply and quality that can be used by rural areas, communities, and agricultural users. Therefore, the overall approach will primarily focus on implementing groundwater monitoring programs, investigating additional water sources to supplement groundwater, and implementing various conservation and educational programs. The projects described below were selected with this approach in mind.

6.2 Projects

6.2.1 *Project Identification*

Projects were identified through a lengthy outreach effort involving the Stakeholder Advisory Committee (SHAC) and the Vina GSAs. The process included soliciting input from governmental agencies, water purveyors, and local landowners. The GSAs website allowed project proponents to input the available information on each project.

The majority of projects submitted were proposed by the Vina Groundwater Sustainability Agency (GSA), with some being a joint effort with the Rock Creek Reclamation District (RCRD) GSA. Some of the projects also include other proponents, such as Chico State University (CSU), Pacific Gas and Electric Company (PG&E), California Water Service Company Chico (CalWater), local agricultural farmers, and others. The list of proponents and other entities involved in the projects is included in Table 6-1 below.

The provided project information was compiled into an initial draft list with similar and overlapping projects combined as appropriate. The draft list was presented to the SHAC in their June 15, 2021 meeting and to the GSA Boards at their July meetings. The projects were then ranked based on the following priorities:

- Project addresses one or more of the Undesirable Results
- Project is implementable with respect to technical complexity, regulatory complexity, institutional consideration, and public acceptance
- Project is implementable within the SGMA timeframe

- Project benefits Underrepresented Communities (URCs)
- Project is in an area where water quality is suitable for use

6.2.2 *Project Implementation*

Projects will be implemented through the individual project proponent with the GSAs providing oversight. The GSAs oversight may vary from acknowledging the implementation of the project to actively participating in the design and construction of the project. The GSAs will track the estimated effect on the water budget from projects on an annual basis.

6.2.3 *List of Projects*

Several projects to achieve the Vina Subbasin’s sustainability goal were identified. The initial set of projects was reviewed by the SHAC. A final list of 24 possible projects is included in this GSP and they are categorized into several project types, including direct and in-lieu recharge, intra-basin water transfers, water recycling, 6-3and demand conservation. Projects are further classified into three categories based on project status: Planned, Potential, and Longer-term or Conceptual, as defined below.

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

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

- The Measurable Objective benefitted by the project
- Permitting and regulatory processes
- Timetable for initiation and completion
- Expected benefits
- How the project will be accomplished
- Legal authority

- Estimated costs and plans to meet costs
- Implementation circumstances
- Public noticing

Table 6-1 provides a summary of the 13 projects. Full descriptions are included below. Figures 6-1 and 6-2 show the locations of these planned and potential projects.

Table 6-1: List of SGMA Projects

Project Name	Project Type	Project Proponent	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (AF/year)
Agricultural Irrigation Efficiency	Conservation	Vina GSA	Groundwater Levels	Planning Stage	2022-2025	TBD	None	4,000 (based on 2% reduction)
Flood MAR	Direct Recharge, In-lieu Recharge	Vina GSA, RCRD GSA	Groundwater Levels	Planning Stage	2022-2032	TBD	SWRCB Water Right Permit, CEQA	1,000 per project
Residential Conservation	Conservation	CalWater Chico, Vina GSA	Groundwater Levels	Planning Stage	2022-2025	TBD	None	100
Paradise Irrigation District Intertie	In-Lieu Recharge	PID, CalWater, Vina GSA	Groundwater Levels	Planning Stage	TBD, after Spring 2022	TBD	CEQA, County Encroachment Permit	5,000
Streamflow Augmentation	Direct Recharge, In-Lieu Recharge	Vina GSA, RCRD GSA, PID, PG&E	Groundwater Levels, Surface Water Depletion	Planning Stage	2022-2025	\$50-\$100 per acre-foot	SWRCB Water Right Permit, CEQA	1,000-5,000
Agricultural Surface Water Supplies	Intra-Basin Water Transfer	Vina GSA, Agricultural Groundwater Users of Butte County, Farm Bureau	Groundwater Levels	Planning Stage	2025-2032	TBD	SWRCB Water Right Permit, CEQA, others TBD	2,000 – 3,000
Extend Orchard Replacement	Conservation	Vina GSA, Butte County	Groundwater Levels	Conceptual Planning Stage	TBD	TBD	None	4,000-8,000

Project Name	Project Type	Project Proponent	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (AF/year)
Miocene Canal Recharge	Direct Recharge	Vina GSA, PG&E, Butte County	Groundwater Levels	Conceptual Planning Stage	2025	TBD	CEQA, SWRCB Water Rights Permit	2,000 acre-feet based on 10,000 acre-feet available for recharge (20% efficiency)
Wastewater Recycling	Direct Recharge, Water Recycling	Vina GSA, City of Chico	Groundwater Levels	Planning Stage	2030-2038	TBD	SWRCB Water Right Permit, CEQA, NPDES permit, others TBD	5,000
Community Water Education Initiative	Education and Outreach	CSU, CWE, Chico State Enterprises	Groundwater Levels, Groundwater Storage, Water Quality, Land Subsidence, Surface Water Depletion, Education and Outreach	Ready for Implementation	Currently ongoing, expansion by 2023 depending on funding	Component 1: \$50-100K annually Component 2: \$10,000-\$200,000 annually Component 3: \$10,000-\$25,000 annually	None	TBD
Rangeland Management and Water Retention	Conservation	CSU, Chico State Enterprises	Groundwater Levels	Planning Stage	Baseline data collection (2021-2022) Development of Master Management Plan (2022-2024)	TBD	CEQA and/or NEPA depending on project impact	TBD

Project Name	Project Type	Project Proponent	Measurable Objective Expected to Benefit	Current Status	Timetable (initiation and completion)	Estimated Costs	Required Permitting and Regulatory Process	Expected Groundwater Demand Reduction (AF/year)
Fuels Management for Watershed Health	Conservation	CSU, Chico State Enterprises	Groundwater Levels, Groundwater Storage, Water Quality, Surface Water Depletion	Part of project currently ongoing, rest in planning stage	450 acres ongoing; 4,000 acres 2021-2030; 6,000 to 10,000 acres 2025-2040	\$8.0 million -\$14.0 million	CEQA	TBD
Removal of Invasive Species	Conservation	CSU, Chico State Enterprises	Groundwater Levels	Planning Stage	Inventory and mapping of properties: 2022-2023 Development of invasive management for water retention plan: 2023-2024 Identify and secure funding: 2022-2026 Implement projects and measure results: 2025 and beyond	TBD	CEQA and/or NEPA depending on project location and impact	TBD

1 *6.2.4 Planned Projects*

2 Projects categorized as Planned Projects are expected to move forward and be completed to
3 achieve the Subbasin’s sustainability goal by 2042. The estimated groundwater supply from
4 these projects is expected to offset the projected overdraft of 15,000 AF/year.

5 *6.2.4.1 Project 1: Agricultural Irrigation Efficiency*

6 A survey is currently being conducted in North and South Vina by the Vina GSA,
7 Agricultural Groundwater Users of Butte County, and Butte County Farm Bureau in order
8 to evaluate current irrigation methods and practices, identify opportunities and methods to
9 improve irrigation efficiency, determine potential issues preventing the adoption of
10 efficiency practices, and provide recommendations for increasing participation in these
11 practices. The results of this survey are expected to be available in July 2021, with
12 implementation of the project expected to be between 2022 and 2025. It is estimated that the
13 adoption of more efficient practices could reduce groundwater demand by 1 to 2%, which
14 translates to a reduction in groundwater demand of 2,000 to 4,000 acre-feet per year.

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Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	4,000 acre-feet/year
Other Participating Entities	Agricultural Groundwater Users of Butte County, Butte County Farm Bureau

16

17 Measurable Objective Expected to Benefit: Groundwater Levels

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

19 Required Permitting and Regulatory Process: None

20 Timetable for Initiation and Completion: 2022-2025

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

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

27 Legal Authority: The project would be under the authority of Vina GSA, Agricultural
28 Groundwater Users of Butte County, and Butte County Farm Bureau.

29 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1, Proposition 68,
30 United States Department of Agriculture (USDA), Drought Resiliency Grants

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

35 Trigger for Implementation and Termination: The project will be initiated once the results of
36 the initial survey are available, estimated around July 2021.

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

39 *6.2.4.2 Project 2: Flood MAR*

40 Under this project, Vina GSA will expand on the Flood MAR initiative, which was originally
41 developed by the Department of Water Resources to promote recharge programs that use
42 fields, recharge basins, and/or recharge ponds to divert high flows in creeks and streams.
43 Individual recharge projects will eventually occur, but this particular project will focus on
44 the initial scoping and identify specific recharge opportunities in the Vina Subbasin. At first,
45 Vina GSA will focus their efforts on areas with the greatest need for recharge and seek grants
46 and other funding sources to implement the projects.

47 The following are examples of potential projects in the Subbasin:

48 Sand Creek Project – This project would take place in the North Chico and Nord areas and
49 would involve obtaining data that would later be used to develop mitigation measures for
50 flooding and recharge. The data may also be used to decide future actions towards habitat
51 restoration and runoff management to sustain groundwater. This project is currently
52 developing a Decision Support Tool to determine future construction scope and feasibility.

53 Lindo Channel – This project would divert water from Big Chico Creek when flow exceeds
54 75 cubic feet per second and store the water in the Lindo Channel. The Lindo Channel can
55 then be used as a recharge source for other areas and potentially provide 2,000 acre-feet.

56 Other additional recharge projects would be developed by the Vina GSA or local landowners.

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Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Direct and In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	1,000 acre-feet/year per project
Other Participating Entities	RCRD GSA, California State Water Resources Control Board (SWRCB)

61

62 Measurable Objective Expected to Benefit: lowering of groundwater levels by enhancing in-
63 lieu recharge opportunities

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

65 Required Permitting and Regulatory Process: SWRCB Water Right Permit, California
66 Environmental Quality Act (CEQA)

67 Timetable for Initiation and Completion: 2022-2032

68 Expected Benefits and Evaluation: This project would develop the first steps of the Flood
69 MAR initiative for the Vina Subbasin region and identify specific groundwater recharge and
70 management projects based on feasibility, need, and available funding. The initiation of this
71 project would then lead to additional recharge projects.

72 How Project Will Be Accomplished/Evaluation of Water Source: This project will help to
73 identify and develop specific recharge projects in the region, which will then individually
74 determine recharge sources. For example, one potential recharge project will divert water
75 from Big Chico Creek to Lindo Channel, which then can be used as a recharge source for
76 other locations.

77 Legal Authority: The project would be under the authority of the Vina GSA and RCRD GSA.

78 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1 and Proposition 68

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

83 Trigger for Implementation and Termination: None

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

86 *6.2.4.3 Project: Residential Conservation*

87 CalWater Chico, which provides water to the City of Chico via groundwater, proposed a
88 series of conservation projects under their 2020 Urban Water Management Plan including
89 toilet replacement, urinal valve and bowl replacement, clothes washer replacement,
90 residential conservation kits, smart controllers, high efficiency irrigation nozzles, and turf
91 buy-back.

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Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	100 acre-feet/year
Other Participating Entities	CalWater Chico

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94 Measurable Objective Expected to Benefit: Groundwater Levels

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

96 Required Permitting and Regulatory Process: None

97 Timetable for Initiation and Completion: 2022-2025

98 Expected Benefits and Evaluation: The implementation of several different conservation
99 projects for residential areas is expected to reduce groundwater demand by 100 acre-feet per
100 year in Chico.

101 How Project Will Be Accomplished/Evaluation of Water Source: This project is a demand-
102 side conservation project implemented by CalWater in residential areas. No additional water
103 source will be utilized for this project.

104 Legal Authority: The project would be under the authority of Vina GSA and CalWater Chico.
105 CalWater Chico would initiate the conservation programs.

106 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1, Proposition 68,
107 Drought Resiliency Grants, CalWater

108 Circumstances for Implementation: This project is a Planned Project that is anticipated to
109 move forward. As scenarios change, the Potential Projects can come online to bring additional

110 resources for adaptive management. Implementation of Potential Projects will be based on
111 long-term management or changing needs of the GSA or Subbasin.

112 Trigger for Implementation and Termination: Increased groundwater demand due to an
113 increasing number of planned residential developments in Chico (according to the City of
114 Chico and Butte County General Plans).

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

117 *6.2.4.4 Project: Paradise Irrigation District Intertie*

118 After the devastation of the 2018 Camp Fire in Paradise, CA, PID lost 95% of their customers.
119 In order to help PID sustain their business, this project proposes that PID supply CalWater,
120 which serves the City of Chico, with water from one of their surface water sources. Currently,
121 Chico’s only water source is groundwater and their annual demand is 25,000 acre-feet. The
122 additional water source would help offset the groundwater demand and help groundwater
123 levels stabilize in the Vina Subbasin. The State Water Resources Board is currently conducting
124 a study through Spring 2022 to help PID evaluate their options for long-term sustainability.
125 This study will include the feasibility of the PID-CalWater Intertie project.

126

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	5,000 acre-feet/year
Other Participating Entities	PID, CalWater

127

128 Measurable Objective Expected to Benefit: Groundwater Levels

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

130 Required Permitting and Regulatory Process: County encroachment permit, CEQA

131 Timetable for Initiation and Completion: TBD, after Spring 2022

132 Expected Benefits and Evaluation: An additional source for Chico from surface water would
133 help offset the demand on groundwater in the Vina Subbasin and allow groundwater levels
134 to stabilize. In addition, this would help PID’s business after they lost customers during the
135 Camp Fire.

136 How Project Will Be Accomplished/Evaluation of Water Source: This project will allow PID
 137 to provide a surface water source to the City of Chico to help offset groundwater demand.
 138 Groundwater is currently the only source of water for Chico.

139 Legal Authority: The project would be under the authority of Vina GSA, PID, and CalWater.

140 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1, Proposition 68,
 141 State Revolving Fund, Federal Infrastructure Funds

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

147 Trigger for Implementation and Termination: PID’s loss of customers from the Camp Fire,
 148 decreasing groundwater levels in the Subbasin, increasing groundwater demand in Chico

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

152 *6.2.4.5 Project: Streamflow Augmentation*

153 Under the management of the Vina GSA, this project would transport excess untreated
 154 surface water from Paradise Irrigation District (PID), PG&E, and other water right holders in
 155 the upper watershed to various parts of the Vina Subbasin through creeks and streams. The
 156 goal of the project would be to provide additional water sources to riparian water holders
 157 such as Durham Mutual, Rancho Esquon, M&T Ranch, and Gorrill Ranches as well as
 158 increase stream flows and direct and in-lieu recharge. Prior to the start of the project, Vina
 159 GSA would conduct an investigation and feasibility study to ensure that enough surface
 160 water would be available. The project would primarily take place at Comanche Creek, Butte
 161 Creek, Little Chico Creek, and Big Chico Creek.

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Direct Recharge, In-Lieu Recharge
Estimated Groundwater Offset and/or Recharge:	1,000 – 5,000 acre-feet/year
Other Participating Entities	RCRD GSA, PID, PG&E

162

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

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

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

166 Timetable for Initiation and Completion: 2022-2025

167 Expected Benefits and Evaluation: Additional sources of surface water would help to increase
168 surface water levels in creeks and streams, groundwater levels via direct and in-lieu recharge,
169 and overall water availability for riparian water holders.

170 How Project Will Be Accomplished/Evaluation of Water Source: The additional water sources
171 would come from any available surface water from PID, PG&E, and other water right holders
172 in the upper watershed.

173 Legal Authority: The project would be under the authority of Vina GSA.

174 Estimated Costs and Plans to Meet Costs: \$50 - \$100/acre-foot, funding via California Wildlife
175 Conservation Board, Resource Renewal Institute, Proposition 1, Proposition 68, Vina fee

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

180 Trigger for Implementation and Termination: None

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

183 *6.2.5 Potential Projects*

184 Projects categorized as Potential Projects are currently in the planning stages and may move
185 forward if funding becomes available. Potential Projects represent a “menu of options” for
186 the Subbasin to achieve long-term sustainability and offset the remaining imbalance above
187 and beyond implementation of the Planned Projects.

188 *6.2.5.1 Project: Agricultural Surface Water Supplies*

189 Under this project, surface water from water right holders in the neighboring Butte Subbasin
190 and the upper watershed would provide water for the Vina North and South areas. Some of
191 these surface water sources would include the Sacramento River and Lake Oroville. Surface
192 water would help agricultural users reduce their groundwater usage. Agricultural users may
193 need to install a dual irrigation system that allows them to switch between groundwater and
194 surface water depending on the availability of the surface water.

195

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Intra-Water Basin Transfer
Estimated Groundwater Offset and/or Recharge:	2,000 – 3,000 acre-feet/year
Other Participating Entities	Agricultural Groundwater Users of Butte County, Farm Bureau

196

197 Measurable Objective Expected to Benefit: Groundwater Levels Project Status: This project is
 198 in the planning stages.

199 Required Permitting and Regulatory Process: SWRCB Water Right Permit, CEQA, others
 200 TBD

201 Timetable for Initiation and Completion: 2025-2032

202 Expected Benefits and Evaluation: Surface water sources from neighboring basins would
 203 decrease the Vina Subbasin’s dependence on groundwater and allow groundwater levels to
 204 stabilize.

205 How Project Will Be Accomplished/Evaluation of Water Source: The water sources for this
 206 project would include available surface water from the Butte Subbasin and upper watershed
 207 (Sacramento River, Lake Oroville, etc.).

208 Legal Authority: The project would be under the authority of Vina GSA.

209 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1 and Proposition 68

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

215 Trigger for Implementation and Termination: None

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

219 *6.2.5.2 Extend Orchard Replacement*

220 Normally, orchards, such as those for almonds and walnuts, are removed and replanted
 221 within one season to maximize profits for farmers. Under this project, various funding

222 sources would incentivize farmers to increase the period between orchard removal and
 223 replanting by one growing season. The extra time would allow the soil to fallow and decrease
 224 the overall demand on groundwater and other water sources. Additionally, this program
 225 would also reduce the need for soil treatments such as fumigation and expand recycling
 226 options for the previous orchard. This project has the potential to fallow between 1,600 and
 227 3,200 acres per year in North and South Vina.

228

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	4,000 – 8,000 acre-feet/year
Other Participating Entities:	Butte County

229

230 Measurable Objective Expected to Benefit: Groundwater Levels

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

232 Required Permitting and Regulatory Process: None

233 Timetable for Initiation and Completion: TBD. The timetable would be dependent on the
 234 availability of financial incentives and willingness of farmers to participate.

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

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

240 Legal Authority: The project would be under the authority of Butte County.

241 Estimated Costs and Plans to Meet Costs: TBD; funding via Proposition 1, Proposition 68,
 242 USDA, National Resource Conservation Service (NRCS)

243 Circumstances for Implementation: This project is a Longer-term/Conceptual Project,
 244 meaning it is in the early conceptual planning stages and would require significant additional
 245 work to move forward. Longer-term/Conceptual Projects represent potential future projects
 246 that could conceptually provide a benefit to the Subbasin in the future. As scenarios change,
 247 Longer-term/Conceptual Projects can come online to bring additional resources for adaptive
 248 management. The project proponents are in the process of determining the feasibility of this
 249 project including the possibility of securing the necessary finances to move forward.

250 Trigger for Implementation and Termination: None

251 Process for Determining Conditions Requiring the Project have Occurred: Implementation of
252 Longer-term/Conceptual Projects will be based on long-term management or changing needs
253 of the GSA or Subbasin.

254 *6.2.5.3 Miocene Canal Recharge*

255 During the 2018 Camp Fire, the upper Miocene Canal, which is operated by PG&E, was
256 destroyed. Under this project, the upper canal would be rebuilt and re-watered. Additionally,
257 PG&E would sell the Miocene Canal system by mid-2022 and modify the system to increase
258 water supply reliability. One such modification might include establishing recharge ponds
259 along the west side of the Miocene Canal in areas conducive to recharging the Vina South
260 Subbasin.

261

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Direct Recharge
Estimated Groundwater Offset and/or Recharge:	2,000 acre-feet based on 10,000 acre-feet available for recharge (20% efficiency)
Other Participating Entities:	PG&E, Butte County

262

263 Measurable Objective Expected to Benefit: Groundwater Levels

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

265 Required Permitting and Regulatory Process: CEQA, SWRCB Water Rights Permit

266 Timetable for Initiation and Completion: After 2025

267 Expected Benefits and Evaluation: Rebuilding the upper Miocene Canal and making
268 improvements to the overall system would increase recharge into the Vina South Subbasin
269 and surface water availability for other uses.

270 How Project Will Be Accomplished/Evaluation of Water Source: This project would be
271 initiated by PG&E, who would obtain water from the same water sources that currently
272 supply the Miocene Canal.

273 Legal Authority: The project would be under the authority of Vina GSA and PG&E.

274 Estimated Costs and Plans to Meet Costs: TBD, funding via state and federal grants

275 Circumstances for Implementation: This project is a Longer-term/Conceptual Project,
276 meaning it is in the early conceptual planning stages and would require significant additional
277 work to move forward. Longer-term/Conceptual Projects represent potential future projects
278 that could conceptually provide a benefit to the Subbasin in the future. As scenarios change,
279 Longer-term/Conceptual Projects can come online to bring additional resources for adaptive
280 management. The project proponents are in the process of determining the feasibility of this
281 project including the possibility of securing the necessary finances to move forward.

282

283 Trigger for Implementation and Termination: None

284 Process for Determining Conditions Requiring the Project have Occurred: Implementation of
285 Longer-term/Conceptual Projects will be based on long-term management or changing needs
286 of the GSA or Subbasin.

287 *6.2.5.4 Community Monitoring Program*

288 This project would create routine water table monitoring programs for approximately 8,000
289 acres of Ecological Reserves in the region between lower Forest Ranch and Cohasset Road
290 near Chico Airport, including the Big Chico Creek, Sheep Hollow, and Cabin Hollow
291 tributaries.

292

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Monitoring
Estimated Groundwater Offset and/or Recharge:	0 acre-feet/year
Other Participating Entities:	CSU, Chico Ecological Reserves

293

294 Measurable Objective Expected to Benefit: Groundwater Levels

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

296 Required Permitting and Regulatory Process: None.

297 Timetable for Initiation and Completion: The establishment of these new monitoring
298 programs is planned to take place between 2022 and 2025.

299 Expected Benefits and Evaluation: Routine water table monitoring programs will track
300 overall water table trends in the region and provide important, up-to-date data for making
301 decisions on water management.

302 How Project Will Be Accomplished/Evaluation of Water Source: CSU and Chico Ecological
303 Reserves will implement the monitoring programs on a routine basis through their university
304 programs. No additional water source will be utilized for this project.

305 Legal Authority: The project would be under the authority of CSU and Chico Ecological
306 Reserves.

307 Estimated Costs and Plans to Meet Costs: TBD, funding sources TBD

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

312 Trigger for Implementation and Termination: None

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

315 *6.2.5.5 Project: Wastewater Recycling*

316 The City of Chico currently operates a wastewater treatment plant with a treatment capacity
317 of 12 million gallons (36 acre-feet) per day and discharges 13,000 acre-feet per year of the
318 treated wastewater to the Sacramento River (in accordance with their waste discharge permit
319 from the California Water Resources Control Board). Under this project, the city would
320 review the feasibility of diverting some of their recycled wastewater from the Sacramento
321 River to recharge ponds and/or non-crop vegetation in Chico.

322

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Direct Recharge, Water Recycling
Estimated Groundwater Offset and/or Recharge:	5,000 acre-feet/year
Other Participating Entities	City of Chico

323

324 Measurable Objective Expected to Benefit: Groundwater Levels

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

326 Required Permitting and Regulatory Process: SWRCB Water Right permit, CEQA, National
327 Pollutant Discharge Elimination System (NPDES) permit, others TBD

328 Timetable for Initiation and Completion: 2030-2038

329 Expected Benefits and Evaluation: This project would divert treated wastewater, that would
330 otherwise be pumped into the Sacramento River, towards recharge ponds and non-crop
331 vegetation. This would increase groundwater recharge, decrease groundwater demand for
332 farming, and help groundwater levels stabilize in the region.

333 How Project Will Be Accomplished/Evaluation of Water Source: This project would be
334 initiated by the Vina GSA and the City of Chico, and the water source for this project would
335 be the treated wastewater from the City of Chico’s wastewater treatment plant.

336 Legal Authority: The project would be under the authority of Vina GSA and the City of Chico.

337 Estimated Costs and Plans to Meet Costs: TBD, funding via Proposition 1, Proposition 68,
338 and SWRCB

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

344 Trigger for Implementation and Termination: None

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

348 *6.2.5.6 Project: Community Water Education Initiative*

349 The Community Water Education Initiative, proposed by CSU’s CWE, would consist of three
350 main components:

351 1. Water Table Monitoring and Community Education – This component would include
352 developing a water table monitoring program between lower Forest Ranch and the
353 Chico Airport and include Big Chico Creek, Sheep Hollow, and Cabin Hollow
354 Tributaries (an area of approximately 8,000 acres).

355
356 2. Community Water Education Project – The CWE would lead this component of the
357 project to expand on community outreach and education associated with water-
358 related topics and issues of the region. CWE would focus on topics such as regional
359 groundwater issues, connectivity of surface and groundwater, decision-making
360 during drought years, basic aquifer knowledge, and more, and target agricultural well
361 users, domestic well users, and municipal customers. The scope would also include

362 technical seminars and field trips, as well as creating educational materials such as
363 fact sheets, printed materials, and website content.

364
365 3. Big Chico Creek Watershed Tour – CWE currently hosts a Big Chico Creek Watershed
366 Tour every year that lasts for four days (2 weekends in March and April) and that
367 takes participants from the watershed’s headwaters to the Big Chico Creek Ecological
368 Reserve, through CSU campus, and to its confluence with the Sacramento River.
369 During the program, participants learn about the watershed, explore various water
370 issues, and help CSU faculty research the health of the watershed. Under this project,
371 CSU proposes to expand the program to include community members and more
372 groundwater education, with a focus on the Vina Subbasin, with the goal to help
373 community members better understand their role in sustainable groundwater
374 management.

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Education and Outreach
Estimated Groundwater Offset and/or Recharge:	0 acre-feet/year
Other Participating Entities	CSU, CWE, Chico State Enterprises

375
376 Measurable Objective Expected to Benefit: Groundwater Levels, Groundwater Storage,
377 Water Quality, Land Subsidence, Surface Water Depletion, Education and Outreach

378 Project Status: This project is ready for implementation. Possible expansion by 2023
379 depending on funding.

380 Required Permitting and Regulatory Process: None

381 Timetable for Initiation and Completion: Currently measuring and providing community
382 education with the possibility of expansion by 2023 depending on funding.

383 Expected Benefits and Evaluation: This project would expand the education and outreach on
384 important watershed and groundwater issues in the region, helping community members
385 better understand their role in sustainable water management.

386 How Project Will Be Accomplished/Evaluation of Water Source: This is an education and
387 outreach project provided through CSU that does not require a water source.

388 Legal Authority: The project would be under the authority of CSU’s CWE.

389 Estimated Costs and Plans to Meet Costs: \$50-100K annually (Component 1); \$10,000-
390 \$200,000 annually (Component 2); \$10,000-\$25,000 annually (Component 3). Funding via
391 Proposition 1 and Proposition 68

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

397 Trigger for Implementation and Termination: None

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

401 *6.2.5.7 Project: Rangeland Management and Water Retention*

402 Under this project, CSU and Chico State Enterprises would initiate a study of
403 adaptive/regenerative grazing practices on 2,000 or more acres in the region. The study,
404 which would take place between 2021 and 2022, would measure soil compaction, erosion,
405 groundwater retention, and biological diversity. If this study finds that water retention
406 engineering projects would be feasible in the region, based on the collected data on local soil,
407 then CSU would create a master management plan and take necessary steps to complete the
408 water retention projects.

409 This project would take place in two locations across 3,850 acres of historical rangeland
410 between Musty Buck Ridge and the Cohasset Road.

411

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD
Other Participating Entities	CSU, Chico State Enterprises

412

413 Measurable Objective Expected to Benefit: Groundwater Levels

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

415 Required Permitting and Regulatory Process: CEQA and/or NEPA depending on project
416 impact

417 Timetable for Initiation and Completion: Baseline data collection (2021-2022); Development
418 of Master Management Plan (2022-2024)

419 Expected Benefits and Evaluation: This project would evaluate characteristics of local soil and
420 the feasibility to initiate water retention projects. Water retention would help increase the
421 overall water supply for the region.

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

425 Legal Authority: The project would be conducted by CSU.

426 Estimated Costs and Plans to Meet Costs: TBD, funding via state funding through watershed
427 health grants, federal funding through USDA, private funding TBD

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

433 Trigger for Implementation and Termination: Once the study is complete on soil compaction,
434 erosion, groundwater retention, and biological diversity, and it shows that water retention is
435 feasible, then a master management plan will be developed.

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

439 *6.2.5.8 Project: Fuel Management for Watershed Health*

440 This project would involve fuel management in the Upper Watershed, including multiple
441 sites on the 3,950-acre Big Chico Creek Ecological Reserve, 1,500 acres above the Reserve in
442 the Big Chico Creek Watershed, and on private land within the watershed. Fuel reduction
443 projects are currently ongoing at 460 acres. Further fuel reduction is planned for an additional
444 4,000 acres between 2021 and 2030 and another 6,000 to 10,000 acres for 2025 through 2040
445 with the City of Chico Parks Department and other private landowners.

446

Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD
Other Participating Entities	CSU, Chico State Enterprises

447

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

450 Project Status: Part of this project is currently ongoing, with other parts in the planning stages.

451 Required Permitting and Regulatory Process: CEQA

452 Timetable for Initiation and Completion: 450 acres have ongoing fuel reduction; 4,000 acres
 453 planned for 2021-2030; 6,000 to 10,000 acres planned for 2025-2040

454 Expected Benefits and Evaluation: Improved fuel management would prevent inadvertent
 455 spillage and the degradation of water quality.

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

459 Legal Authority: The project would be conducted by CSU.

460 Estimated Costs and Plans to Meet Costs: \$8.0 million -\$14.0 million (based on \$2,000 and
 461 \$3,500 per acre with a target of 4,000 acres); funding via CAL FIRE, Sierra Nevada
 462 Conservancy, California Fire Safe Council, other state and federal funding agencies

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

468 Trigger for Implementation and Termination: None

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

472 **6.2.5.9 Project: Removal of Invasive Species**

473 Invasive species negatively impact the natural ecosystem in several ways, including
474 consuming water and hampering recharge. Under this project, invasive species and native
475 grasses in meadows and oak savannahs would be mapped between 2022 and 2023. This
476 would then be followed by the development of an invasive management for water retention
477 plan between 2023 and 2024, the acquisition of funding between 2022 and 2026, and the
478 implementation of invasive species removal projects after 2025. This project would take place
479 in the Upper Watershed at approximately 8,000 acres between lower Forest Ranch and the
480 Chico Airport, including the Big Chico Creek, Sheep Hollow, and Cabin Hollow drainages.

481

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Conservation
Estimated Groundwater Offset and/or Recharge:	TBD
Other Participating Entities	CSU, Chico State Enterprises

482

483 Measurable Objective Expected to Benefit: Groundwater Levels

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

485 Required Permitting and Regulatory Process: CEQA and/or NEPA depending on project
486 location and impact

487 Timetable for Initiation and Completion:

488 Inventory and mapping of properties: 2022-2023

489 Development of invasive management for water retention plan: 2023-2024

490 Identify and secure funding: 2022-2026

491 Implement projects and measure results: 2025 and beyond

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

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

498 Legal Authority: The project would be conducted by CSU.

499 Estimated Costs and Plans to Meet Costs: TBD, funding via state and federal wildfire
500 resiliency grants

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

506 Trigger for Implementation and Termination: None

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

510 *6.2.6 Longer-term or Conceptual Projects*

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

515 *6.2.6.1 Project: 4-County Contour Mapping*

516 This project proposes to expand the existing monitoring program to include Butte, Glen,
517 Colusa, and Tehama counties and conduct these groundwater elevation surveys in the
518 spring, summer, and fall. The monitoring program would gather data used to produce
519 groundwater contours and estimates of lateral and vertical flow direction and volume.
520 Producing this data for the four counties will help to identify interbasin flow patterns and
521 influences on surface water flows and replenishment locations, thereby improving
522 coordination between counties and water management decision-making.

523

Project Summary	
Submitting GSA:	Vina GSA
Project Type:	Monitoring
Estimated Groundwater Offset and/or Recharge:	The data and analysis will contribute to the sustainable long-term yield of the 4-county basin.
Other Participating Entities:	RCRD GSA

524

525 Measurable Objective Expected to Benefit: Groundwater Levels

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

527 Required Permitting and Regulatory Process: None

528 Timetable for Initiation and Completion: TBD

529 Expected Benefits and Evaluation: Routine water table monitoring programs will track
530 overall water table trends in the region and provide important, up-to-date data for making
531 decisions on water management. Establishing these programs amongst the four counties will
532 aid in the exchange of data and improve regional coordination on various water projects.

533 How Project Will Be Accomplished/Evaluation of Water Source: The expanded water
534 monitoring programs will be established by Vina and RCRD GSAs, with assistance from the
535 four counties. No additional water source will be utilized for this project.

536 Legal Authority: The project would be under the authority of Vina GSA and RCRD GSAs, as
537 well as the four counties.

538 Estimated Costs and Plans to Meet Costs: TBD, funding sources TBD

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

543 Trigger for Implementation and Termination: None

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

546 Expected Benefits and Evaluation: The temporary halt in LDPW production would prevent
547 an increasing amount of groundwater from being pumped and allow time for the Subbasin
548 to re-equilibrate and water levels to increase.

549 How Project Will Be Accomplished/Evaluation of Water Source: This project is a demand-
550 side conservation project implemented by Butte County through a land use ordinance
551 amendment. No additional water source will be utilized for this project.

552 Legal Authority: The project would be under the authority of Butte County, Vina GSA, and
553 neighboring counties and GSAs.

554 Estimated Costs and Plans to Meet Costs: TBD, funding sources not applicable

555 Circumstances for Implementation: This project is a Potential Project, meaning it is currently
556 in the planning stages. Potential Projects represent a “menu of options” for the Subbasin to
557 achieve long-term sustainability and offset the remaining imbalance above and beyond

558 implementation of the Planned Projects. As scenarios change, the Potential Projects can come
559 online to bring additional resources for adaptive management.

560 *6.2.6.2 Project: Update the Butte Basin Groundwater Model*

561 The purpose of this project is to (1) update the current version of the Butte Basin Groundwater
562 Model with newly acquired data and (2) use the updated version of the model to run
563 simulations and better establish the basin’s measurable objectives.

564 Some of the new data to be added is the airborne electromagnetic (AEM) data and data on
565 the different hydraulic conductivities of each layer of the aquifer. The AEM data will be used,
566 among other things, to adjust the various surfaces in the model to better present the aquifer’s
567 hydrogeologic layers.

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

576 The Butte Basin Groundwater Model covers the Vina, Butte, and Wyandotte Creek
577 Subbasins.

578

Project Summary	
Submitting GSA:	Vina GSA, RCRD GSA
Project Type:	Monitoring
Estimated Groundwater Offset and/or Recharge:	The data and analysis will contribute to the sustainable long-term yield of the 4-county basin.
Other Participating Entities	CSU, Center for Water and the Environment (CWE)

579

580 Measurable Objective Expected to Benefit: Groundwater Levels

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

582 Required Permitting and Regulatory Process: None

583 Timetable for Initiation and Completion: TBD

584 Expected Benefits and Evaluation: An updated groundwater model is vital for running
585 accurate simulations that may be used to make important decisions regarding groundwater
586 allocation, pumping, recharge, and other activities. The model should contain the most up-
587 to-date data in order to represent the basin realistically and accurately.

588 How Project Will Be Accomplished/Evaluation of Water Source: This project is a
589 groundwater monitoring and modeling project that would be conducted through CSU's
590 CWE. No additional water source will be utilized for this project.

591 Legal Authority: The project would be under the authority of Vina and RCRD GSAs.

592 Estimated Costs and Plans to Meet Costs: TBD, funding sources TBD

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

598 Trigger for Implementation and Termination: The Butte Basin Groundwater Model contains
599 outdated data that does not represent current conditions of the Subbasin.

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

603 *6.2.7 Notification Process*

604 The GSAs will continue to conduct public outreach and will be responsible for notification of
605 the projects. Regular updates will be provided to the GSA Boards and presented on the
606 website as projects are implemented. Outreach is likely to include public notices, meetings,
607 website, social media, and email lists.

608 **6.3 Management Actions**

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

613 The following sections will present a suite of management action options that the GSA may
614 consider during GSP implementation. The schedule to implement the management actions is
615 likely to vary depending upon subbasin conditions and the expected benefits may also vary
616 year to year.

617 *6.3.1.1 General Plan Updates*

618 The Vina GSAs would cooperate with Butte County and the City of Chico with updates to
619 their General Plans. The Vina GSA would evaluate and propose amendments to the plans to
620 ensure that they recognize and support the Vina GSP. The Vina GSAs would ensure that the
621 important components of the GSP are addressed by in the general plans. The recognition and
622 use of groundwater sustainability practices would remain consistent.

623 *6.3.1.2 Domestic Well Mitigation*

624 If an increasing number of domestic groundwater wells go dry in the Subbasin, the GSAs
625 could propose a series of steps to help mitigate this issue. The following steps are proposed
626 under this management action:

- 627 1. Establish a voluntary registry of domestic wells.
- 628 2. Compile domestic well logs, screen depths, and locations.
- 629 3. Secure financial resources to improve and possibly deepen domestic wells that were
630 not constructed to current standards and/or were screened at or above the Minimum
631 Thresholds.
- 632 4. Provide emergency response to homes with dry domestic wells, including supplying
633 bottled water and potable water for sanitation. Priority would be given to
634 disadvantaged communities dependent on groundwater as a drinking water resource.

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

640 *6.3.1.3 Well Permitting Ordinance*

641 According to the current Butte County code, domestic wells are required to be screened
642 below the groundwater levels measured during the 1989 to 1994 drought. This management
643 action proposes that the well ordinance be amended to reflect current groundwater levels.
644 The code would be updated to require well drillers to install well screens below the depths
645 specified in the Minimum Thresholds established for the Vina Subbasin. By lowering the
646 required depth for well screens in future well installations, fewer domestic wells would be
647 impacted.

648 *6.3.1.4 Landscape Ordinance*

649 Butte County and/or the City of Chico would enact an ordinance requiring new residential,
650 commercial, and industrial development to use drought-resistant species for landscaping

651 and to limit the size of grass lawns that require regular irrigation. The ordinance would focus
652 efforts and money on reducing the amount of water used for landscape irrigation and
653 swimming pools while promoting xeriscaping. The reduction in irrigation for landscaping
654 and swimming pools would allow groundwater use for other purposes in the Subbasin.

655 *6.3.1.5 Prohibition of Ski (Recreational) Lakes*

656 In the Vina Subbasin, there are several ski lakes that are currently supplied with
657 groundwater. The Vina GSA would encourage Butte County to amend the zoning ordinance
658 to prohibit the use of groundwater for ski lakes.

659 *6.3.1.6 Expansion of Water Purveyors' Service Area*

660 The Vina GSAs would encourage the expansion of water purveyors' service area to areas
661 across the Subbasin that are reliant on private groundwater wells. This would require action
662 by individual water purveyors, support of residents, and governmental approval. By
663 expanding the service area of water purveyors, areas that rely solely on groundwater would
664 have another source of water and would reduce groundwater extraction.

665 *6.3.1.7 Large Diameter Well Moratorium*

666 The Vina GSAs would encourage Butte County to enact a moratorium that would
667 temporarily pause the approval of permits for the development of new large diameter
668 production wells. A halt in the installation of additional large production wells would limit
669 further groundwater use until other projects can be implemented. The Vina GSAs would also
670 encourage neighboring subbasins to voluntarily enact similar moratoriums, giving the region
671 a chance to identify and rectify data gaps.

672 *6.3.1.8 Groundwater Allocation*

673 If the proposed projects and management actions fail to achieve the 2032 interim target and
674 are unlikely to achieve sustainable criteria by 2042, groundwater pumping allocations would
675 be established based on groundwater budgets across the subbasin. If the Vina GSAs
676 determine groundwater allocations are necessary, a public outreach program will be
677 implemented to determine the groundwater allocations rules and requirements. For
678 example, the program may determine that that certain except for de minimus users may be
679 exempted.

680 **6.4 Adaptive Management Strategies**

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

685 **6.5 Potential Available Funding Mechanisms**

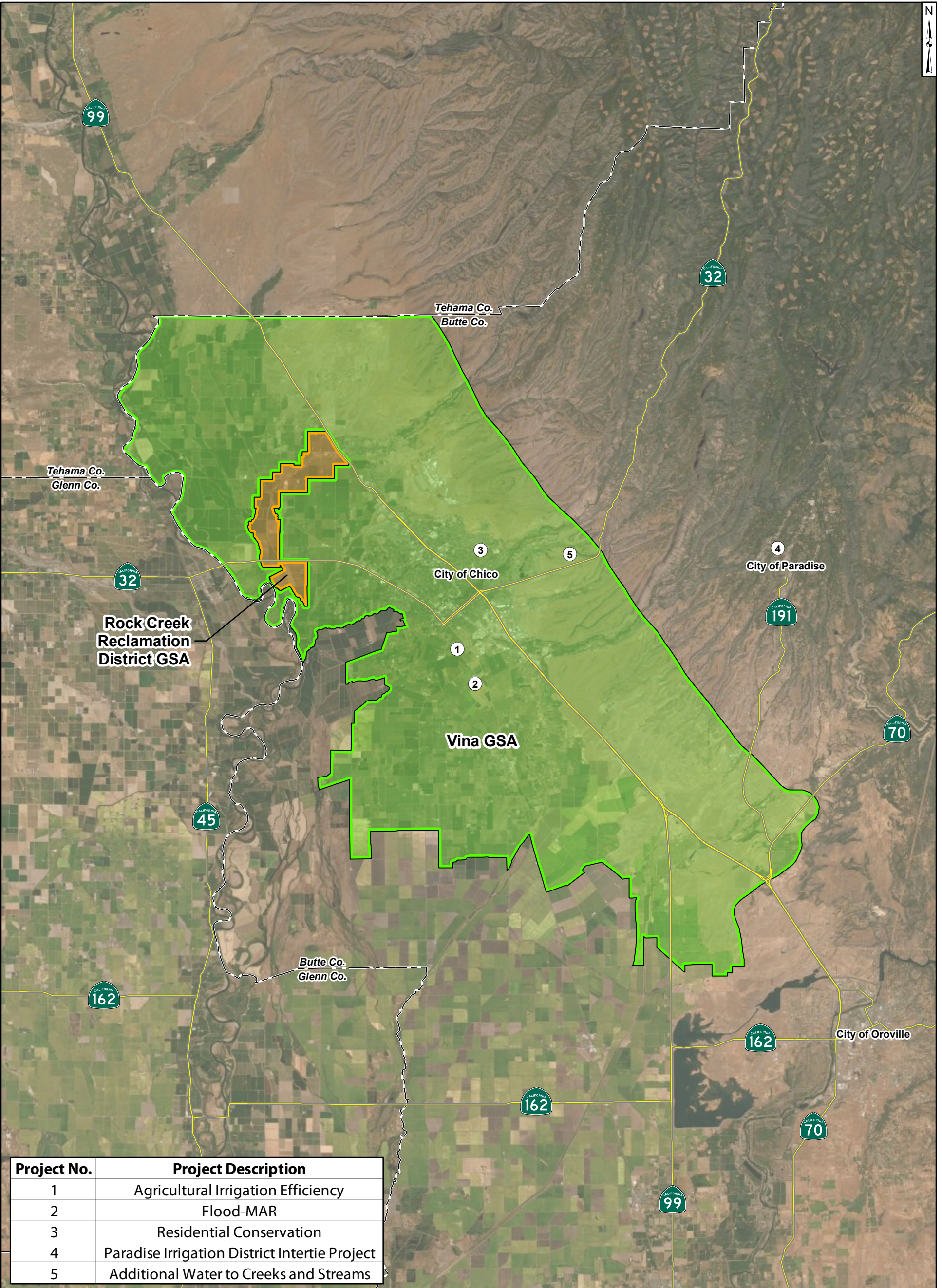
686 As listed above in the individual project descriptions, several funding mechanisms have been
 687 identified to help with the planning and implementation of the GSP projects. The following
 688 is an abbreviated list of some of the funding mechanisms proposed:

689

690

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

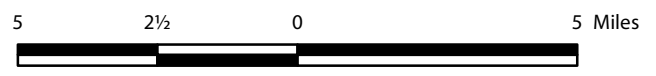
691



Project No.	Project Description
1	Agricultural Irrigation Efficiency
2	Flood-MAR
3	Residential Conservation
4	Paradise Irrigation District Intertie Project
5	Additional Water to Creeks and Streams

Legend

- ③ Planned Project
- Highways
- Groundwater Sustainability Agency (GSA)
- County boundaries
- ▭ Vina GSA
- ▭ Rock Creek Reclamation District GSA



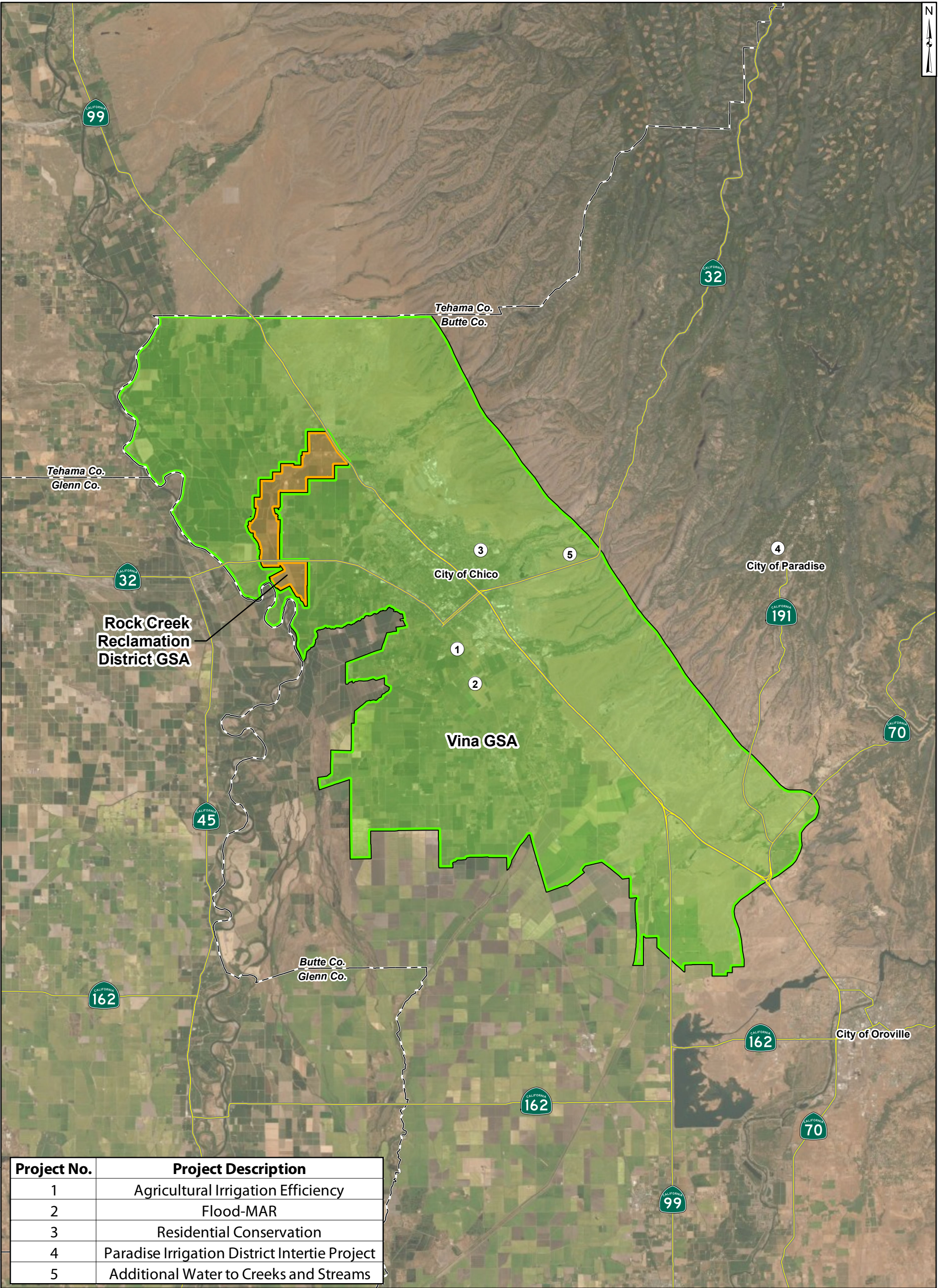
Planned Projects
Vina GSA

Geosyntec
consultants

Figure
A

Project No.: SAC282 July 2021

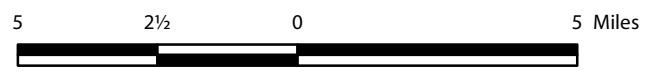
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Project No.	Project Description
1	Agricultural Irrigation Efficiency
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3	Residential Conservation
4	Paradise Irrigation District Intertie Project
5	Additional Water to Creeks and Streams

Legend

- ③ Planned Project
- Groundwater Sustainability Agency (GSA)
 - Vina GSA
 - Rock Creek Reclamation District GSA
- Highways
- - - County boundaries



Planned Projects
Vina GSA

Geosyntec
consultants

Figure
A

Project No.: SAC282 July 2021

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