Chapter 15 Agriculture and Forestry Resources

15.1 Introduction

This chapter describes the environmental setting, methods of analysis, and impact analysis for agriculture and forestry resources that would potentially be affected by the construction and operation of the Project. Agriculture resources are defined as: (1) Important Farmland designated under the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP), specifically Prime Farmland, Farmland of Statewide Importance, and Unique Farmland; (2) land zoned for agricultural use by each county; (3) land under Williamson Act or Farmland Security Zone contracts as recorded by each county; and (4) Important Farmland as defined under the Farmland Protection Policy Act (FPPA)**,** specifically Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. While the DOC and FPPA utilize similar categories to define Important Farmland, the FPPA categories are primarily based upon soil quality, while the DOC breakdown is based upon a combination of soil quality and current land use, and the DOC maps are updated every 2 years on a rotating basis. FPPA coordination with Natural Resources Conservation Service (NRCS), required for projects with a federal nexus that would affect agricultural land, is ongoing, and a Land Evaluation and Site Assessment (LESA) will be completed once a preferred alternative has been selected.

The study area for agriculture and forestry resources consists of the three-county area of Glenn, Colusa, and Yolo Counties where temporary or permanent ground disturbance would occur beyond existing facilities as a result of construction or operation of Project facilities. Because no ground disturbance would occur in Tehama County and construction would take place within an existing facility (RBPP), no agricultural land would be affected, and Tehama County is not discussed further in this chapter. In addition, the Project would not reduce water deliveries to agricultural users (Table 5-30, Chapter 5, *Surface Water Resources*; Tables 32-1 and 32-2, Chapter 32, *Other Required Analyses*; and Appendix 5A, *Surface Water Resources Modeling of Alternatives*, describe modeled results); therefore, the CVP and SWP agricultural users would not experience a reduction of agricultural water supply and are not discussed further in this chapter.

Forestry resources are defined as land zoned for Timberland Production Zone by the county, where applicable, and U.S. Forest Service Administrative Forest Boundaries. No forested lands fall within the Project footprint (Glenn County 2020a, U.S. Forest Service 2020). This analysis does not consider impacts related to forestry resources.

Economic effects on agricultural productivity are discussed in Chapter 30, *Environmental Justice and Socioeconomics*.

Tables 15-1a and 15-1b summarize the CEQA determinations and NEPA conclusions for construction and operations impacts, respectively, of the alternatives.

Table 15-1a. Summary of Construction Impacts and Mitigation Measures for Agriculture Resources

Alternative	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AG-1: Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use			
No Project	NI	-	NI
Alternative 1	LTS	-	LTS
Alternative 2	LTS	-	LTS
Alternative 3	LTS	-	LTS
Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland **Mitigation Measure AG-2.1**: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	SU/SA
Alternative 2	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland **Mitigation Measure AG-2.1**: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	SU/SA
Alternative 3	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland **Mitigation Measure AG-2.1**: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	SU/SA
Impact AG-3: Conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the federal Farmland Protection Policy Act, to nonagricultural use			
No Project	NE	-	NE

Alternative	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Alternative 1	NE	-	NE
Alternative 2	NE	-	NE
Alternative 3	NE	-	NE

Notes:
NI = CEQA no impact
LTS = CEQA less-than-significant impact
S = CEQA significant impact
SU = CEQA significant and unavoidable
NE = NEPA no effect or no adverse effect
SA = NEPA substantial adverse effect
There are no NEPA conclusions for Impact AG-1.
There are no CEQA conclusions for Impact AG-3.
There are no construction NEPA or CEQA conclusions for Impact AG-4.

Table 15-1b. Summary of Operations Impacts and Mitigation Measures for Agriculture Resources

Alternative	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Impact AG-1: Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use			
No Project	NI	-	NI
Alternative 1	S	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SU
Alternative 2	S	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SU
Alternative 3	S	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SU
Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland **Mitigation Measure AG-2.1**: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	SU/SA
Alternative 2	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SU/SA

Alternative	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Mitigation Measure AG-2.1: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	
Alternative 3	S/SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland **Mitigation Measure AG-2.1**: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators	SU/SA
Impact AG-3: Conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the federal Farmland Protection Policy Act, to nonagricultural use			
No Project	NE	-	NE
Alternative 1	SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SA
Alternative 2	SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SA
Alternative 3	SA	**Mitigation Measure AG-1.1**: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland	SA
Impact AG-4: Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the FMMP of the California Resources Agency or under the federal Farmland Protection Policy Act, to nonagricultural use			
No Project	NI/NE	-	NI/NE
Alternative 1	NI/NE	-	NI/NE
Alternative 2	NI/NE	-	NI/NE
Alternative 3	NI/NE	-	NI/NE

Notes:
NI = CEQA no impact
S = CEQA significant impact
SU = CEQA significant and unavoidable
NE = NEPA no effect or no adverse effect
SA = NEPA substantial adverse effect
There are no NEPA conclusions for Impact AG-1.
There are no CEQA conclusions for Impact AG-3.

15.2 Environmental Setting

Agriculture is an important part of the regional and local economy, as well as for the state of California as a whole. In 2016, the study area included 901,558 acres of Important Farmland, 159,035 acres of Farmland of Local Importance, and 459,329 acres of Grazing Land as designated by the FMMP (California Department of Conservation 2016a, 2016b, 2018a); the state of California includes approximately 9 million acres of Important Farmland and approximately 16 million acres of Grazing Land (California Department of Food and Agriculture n.d.:1). In 2021, the study area included slightly over 765,018 acres of Prime Farmland, 192,602 acres of Farmland of Statewide Importance, and no Unique Farmland as designated under the FPPA (California Department of Conservation 2021). In addition, agricultural land is protected by local zoning regulations, as well as by Williamson Act and Farmland Security Zone contracts. Descriptions of the regulations and laws applicable to farmland, including the FMMP, FPPA, Williamson Act, and local zoning are described in Appendix 4A, Section 4A.11, *Chapter 15, Agriculture and Forestry Resources*.

The following discussions describe agricultural resources by county, summarizing trends in conversion of agricultural land, county zoning of agricultural land, and enrollment of parcels in Williamson Act and Farmland Security Zone programs. Figures 15-1a, 15-1b, and 15-1c show the types of crops grown in and adjacent to the study area. Figure 15-2a, 15-2b, and 15-2c show the Important Farmland, Farmland of Local Importance, and Grazing Land[1] as designated under FMMP in and adjacent to the study area. Figures 15-3a, 15-3b, and 15-3c show the zoned agricultural lands in and adjacent to the study area. Figures 15-4a, 15-4b, and 15-4c show the lands under Williamson Act and Farmland Security Zone contracts in and adjacent to the study area.

15.2.1. Glenn County

Agriculture is Glenn County's primary industry (Glenn County 2016a). The primary crops in Glenn County include grassland/pasture, rice, walnuts, and almonds (U.S. Department of Agriculture 2019).

Agriculture is also Glenn County's dominant land use by acreage (California Department of Conservation 2018a). Approximately 68% of land in the county is dedicated to agricultural use, including grazing as described by the FMMP. Approximately 41% is designated Important Farmland under the FMMP, 28% is designated Grazing Land, and 14% is designated Farmland of Local Importance. These lands are generally located in the eastern portion of the county and include the study area. Table 15-2 shows the acreage of Important Farmland in Glenn County in

[1] As defined in Section 15.1, Introduction, in accordance with CEQA requirements, this analysis considers FMMP Important Farmland to include Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as designated by FMMP. While FMMP Farmland of Local Importance is considered Important Farmland by the FMMP, CEQA does not consider it so. In addition, Grazing Land is not considered Important Farmland by the FMMP. This environmental setting accordingly reports Farmland of Local Importance and Grazing Land separately from FMMP Important Farmland. Similarly, this analysis considers FPPA Important Farmland to include Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as designated by FPPA.

2006 and 2016 (California Department of Conservation 2018a).[2] As shown in the table, there was a small decrease in Important Farmland of 0.8%, a decrease in Grazing Land of 0.9%, and an overall decrease in agricultural land of 0.3% between 2006 and 2016.

Table 15-2. Important Farmland, Farmland of Local Importance, and Grazing Land as Designated under the FMMP in Glenn County in 2006, 2016, and 2018 (acres)

Farmland Category	2006	2016	Percent Change	2018 [a]
Prime Farmland	161,683	158,117	-2.2	158,586
Farmland of Statewide Importance	87,868	88,669	0.9	89,173
Unique Farmland	17,470	18,030	3.2	19,634
Important Farmland Subtotal	267,021	264,816	-0.8	267,393
Farmland of Local Importance	80,290	82,836	3.2	82,051
Grazing Land	229,191	227,081	-0.9	225,287
Agricultural Land Total	576,502	574,733	-0.3	574,731

Source: California Department of Conservation 2018a.

Notes:

[a] Glenn County has produced reports for 2018, but Colusa and Yolo Counties have not. This analysis compares the data for 2016 for all counties but also presents the most recently available data for Glenn County in this table for information purposes.

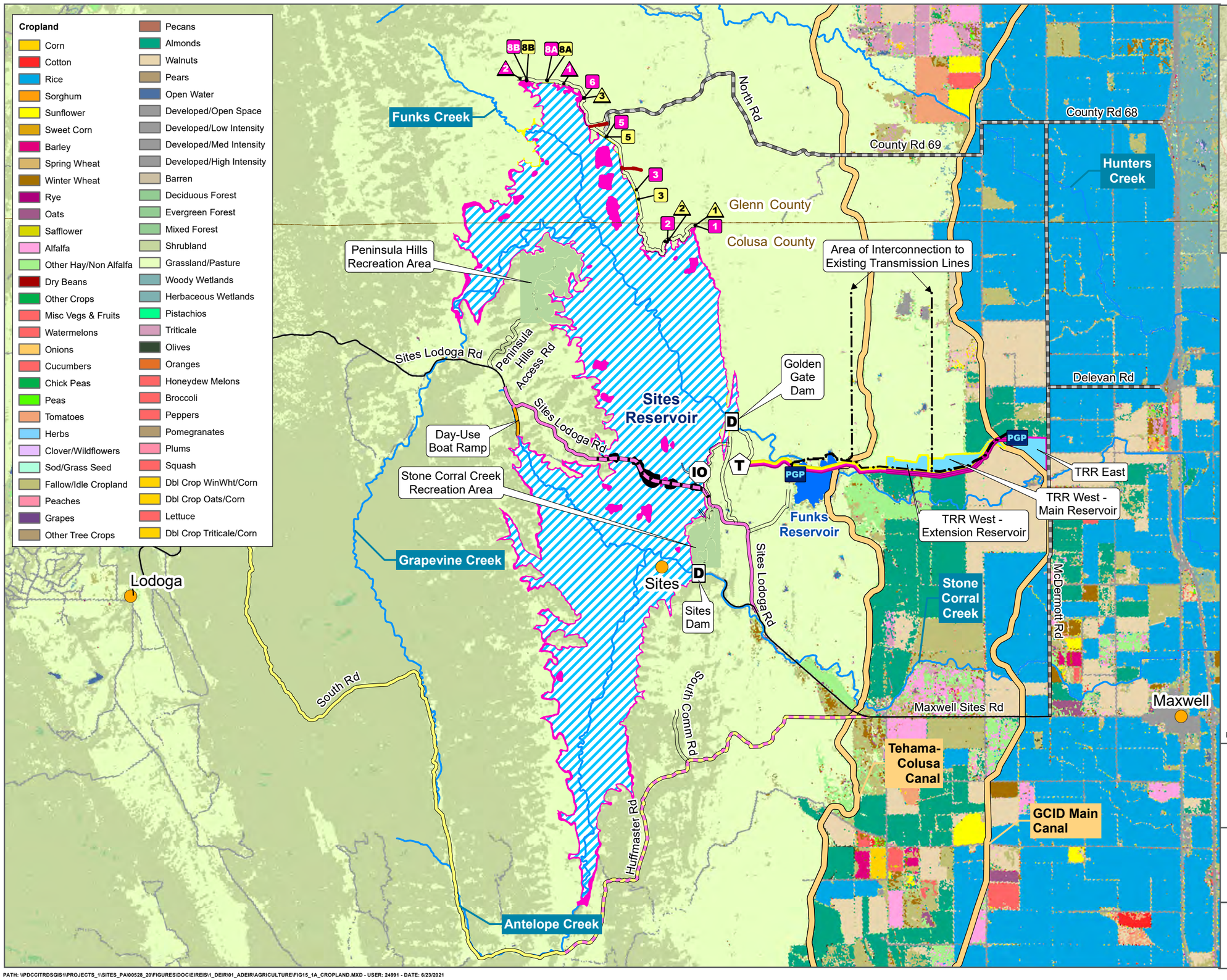
In addition, farmland in Glenn County has been mapped under the federal FPPA. Approximately one-half of Glenn County's land is in agricultural use as described by the FPPA (Table 15-3).

Table 15-3. Land Designated under FPPA in Glenn County (acres)

Type	Area
Prime Farmland if irrigated	211,444
Prime Farmland if irrigated and drained	177
Prime Farmland if irrigated and either protected from flooding or not frequently flooded during the growing season	257
Farmland of Statewide Importance	123,491
Not Prime Farmland	514,164

Source: Natural Resources Conservation Service 2020.

[2] California's FMMP updates its farmland mapping, reports, and statistics for each California county every 2 years using mapping system software, aerial imagery, public review, and field reconnaissance. Maps and reports are updated on a rolling basis. Land conversion data are available from the FMMP through 2018 for Glenn County and through 2016 for Colusa and Yolo Counties (Kisko pers. comm.). This document presents data through 2016 for all counties to allow for cross-county comparison.



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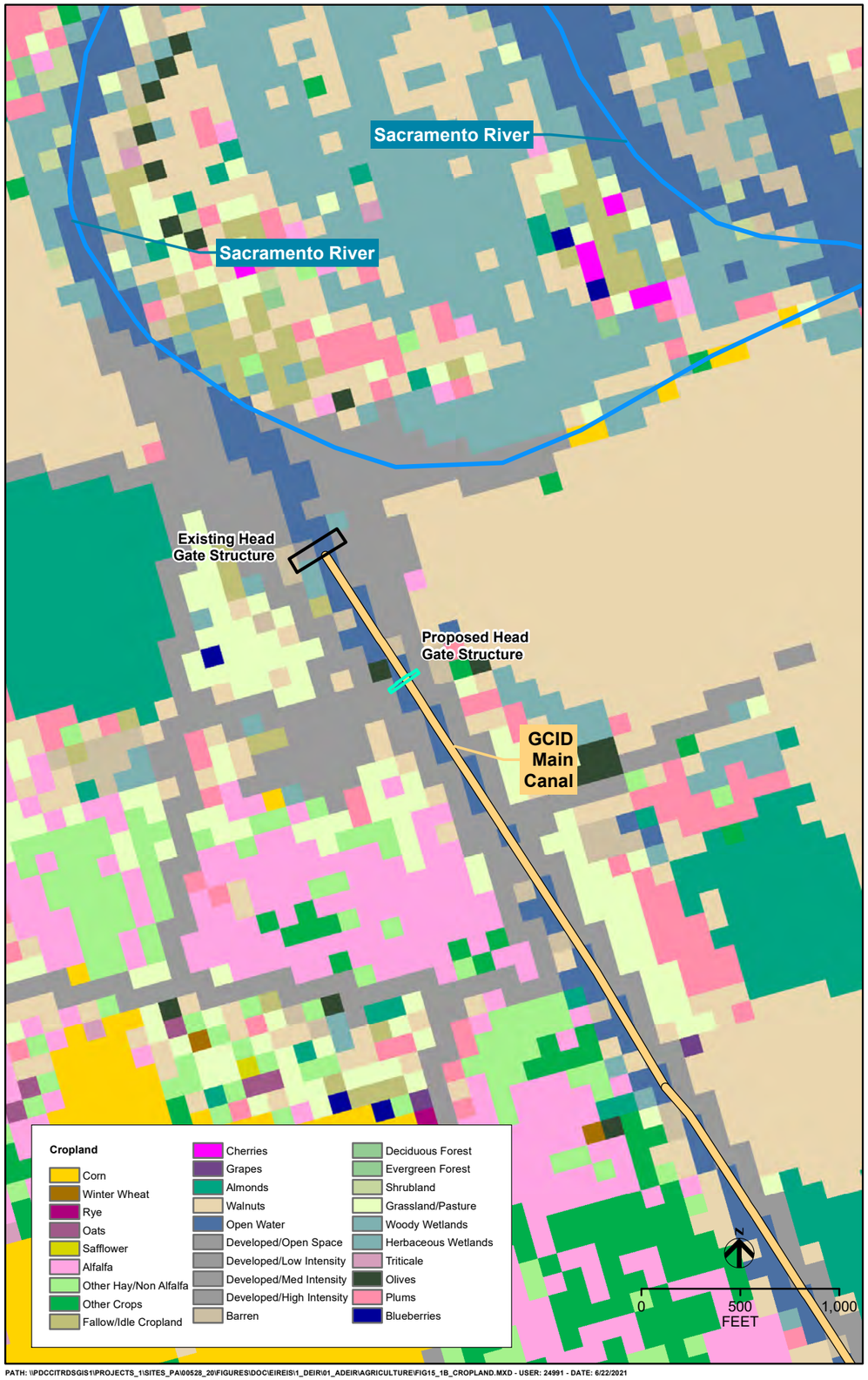

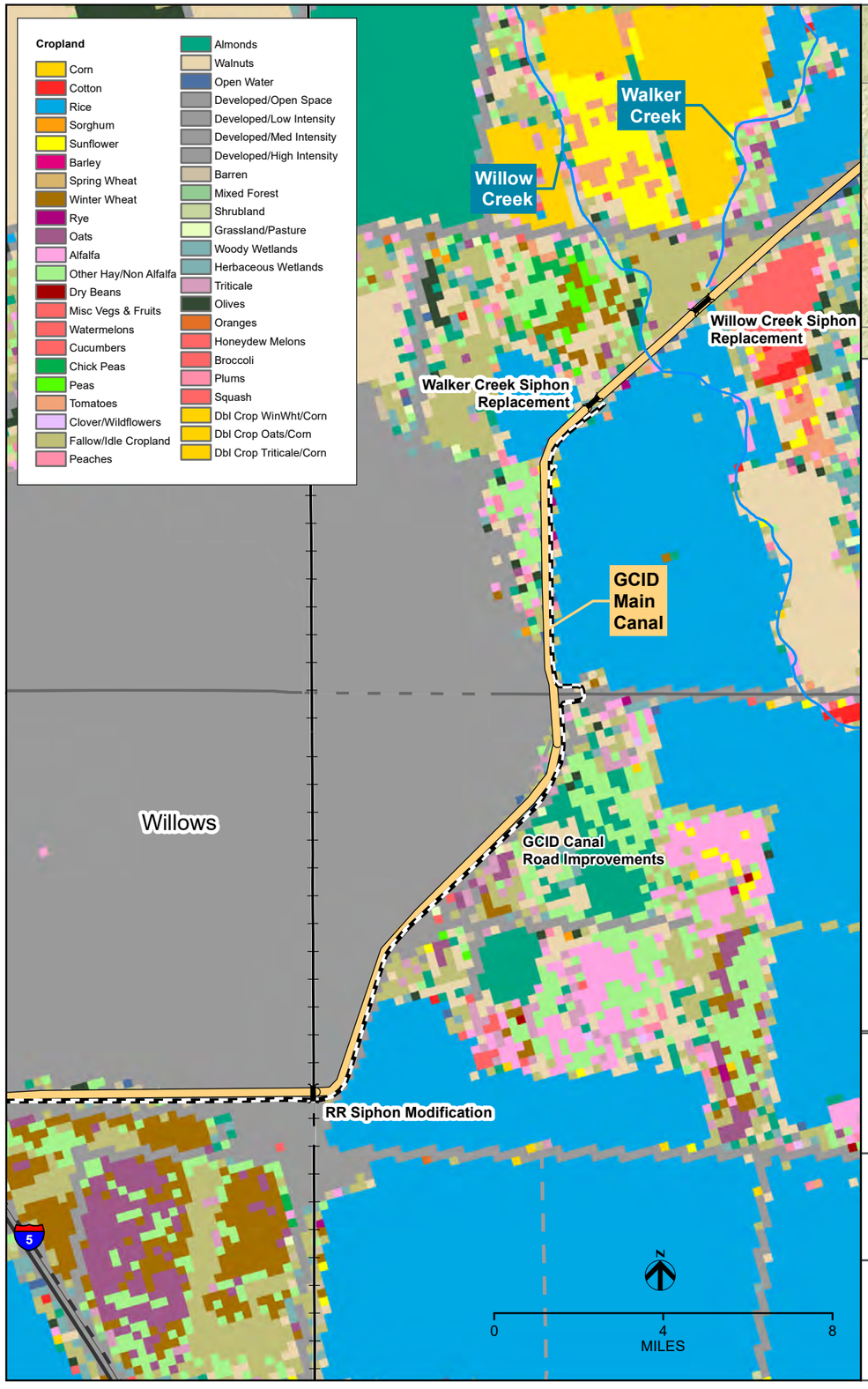

LEGEND

- City Boundary
- Railroads
- River
- Creek/Slough
- Canal

GCID System Upgrades (All Alternatives)

- Siphon Upgrades (Right Map)
- Proposed Head Gate Structure (Left Map)
- GCID Canal Road Improvements

DATA SOURCES: City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canals (NHD) - USGS, 2018; USDA, 2019. Glenn County 2020b, Colusa County 2020b, Yolo County 2020b.

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MAP DATE: 6/22/2021

FIGURE 15-1B

CROPLAND IN THE PROJECT AREA

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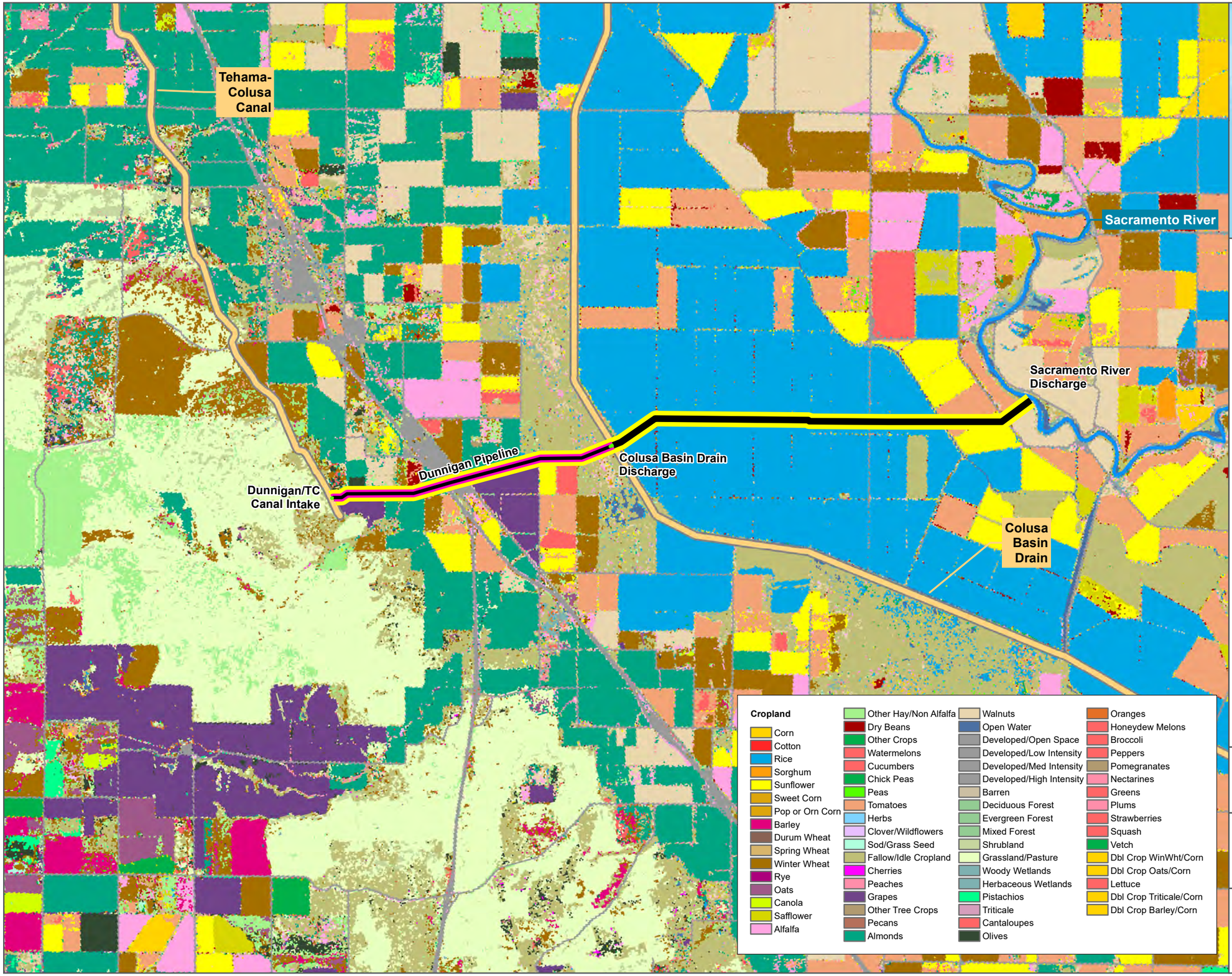

LEGEND

- River
- Canal
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Dunnigan Pipeline Intake/Discharge

DATA SOURCES: Glenn County 2020b, Colusa County 2020b, Yolo County 2020b. Locations - ICF (6/22/2021)

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FIGURE 15-1C

CROPLAND IN THE PROJECT AREA

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Funks Creek
North Rd
County Rd 68
County Rd 69
S
Hunters Creek
G-L
Glenn County
Colusa County
Peninsula Hills Recreation Area
Area of Interconnection to Existing Transmission Lines
U
Sites Lodoga Rd
Peninsula Hills Access Rd
Sites Reservoir
Golden Gate Dam
Delevan Rd
Day-Use Boat Ramp
Stone Corral Creek Recreation Area
L
Funks Reservoir
TRR East
TRR West - Main Reservoir
TRR West - Extension Reservoir
Grapevine Creek
Lodoga
Sites
Sites Dam
Sites Lodoga Rd
G-L
Stone Corral Creek
McDermott Rd
P
South Rd
South Comm Rd
Maxwell Sites Rd
Maxwell
Tehama-Colusa Canal
Huffmaster Rd
GCID Main Canal
Antelope Creek

City/Town/Community
Existing Roads
Canal
Creek\Slough

Project Features - All Alternatives

Inundation Area Common to Alternatives 1, 2 and 3
Underground Pipelines (4)
Access Roads
Road Improvements
Road Realignment
Transmission Line
Day-Use Boat Ramp
Recreation Areas
D Main Dam
T Transition Manifold
IO Inlet\Outlet Tower
PGP Pumping Generating Plant

Project Features - Alternatives 1 and 3

Inundation Area Exclusive to Alternatives 1 and 3 (Total Inundation for Alts 1 and 3 is 1.5 MAF)
Saddle Dikes (total of 2)
1 Saddle Dams (total of 7; 8B includes spillway)
Emergency Release Structure (total of 2)
Road Realignment
Bridge with Prism Fill
Underground Pipelines (4)
Terminal Regulating Reservoir

Project Features - Alternative 2

Inundation Area Exclusive to Alternative 2 (Total Inundation for Alt 2 is 1.3 MAF)
1 Saddle Dikes (total of 3)
1 Saddle Dams (total of 4; 8B includes spillway)
Road Realignment
Terminal Regulating Reservoir

Important Farmland Types

Prime Farmland (P)
Farmland of Statewide Importance (S)
Unique Farmland (U)

Other Farmland

Grazing Land - Local Importance (G-L)

GCID = Glenn-Colusa Irrigation District; MAF = million acre-feet

DATA SOURCES: California Department of Conservation; City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Aerial Imagery (NAIP) - USDA, 2020; Counties - CALFIRE-FRAP, 2019.

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MAP DATE: 6/23/2021

FIGURE 15-2A

IMPORTANT FARMLAND AND GRAZING LAND IN THE PROJECT AREA

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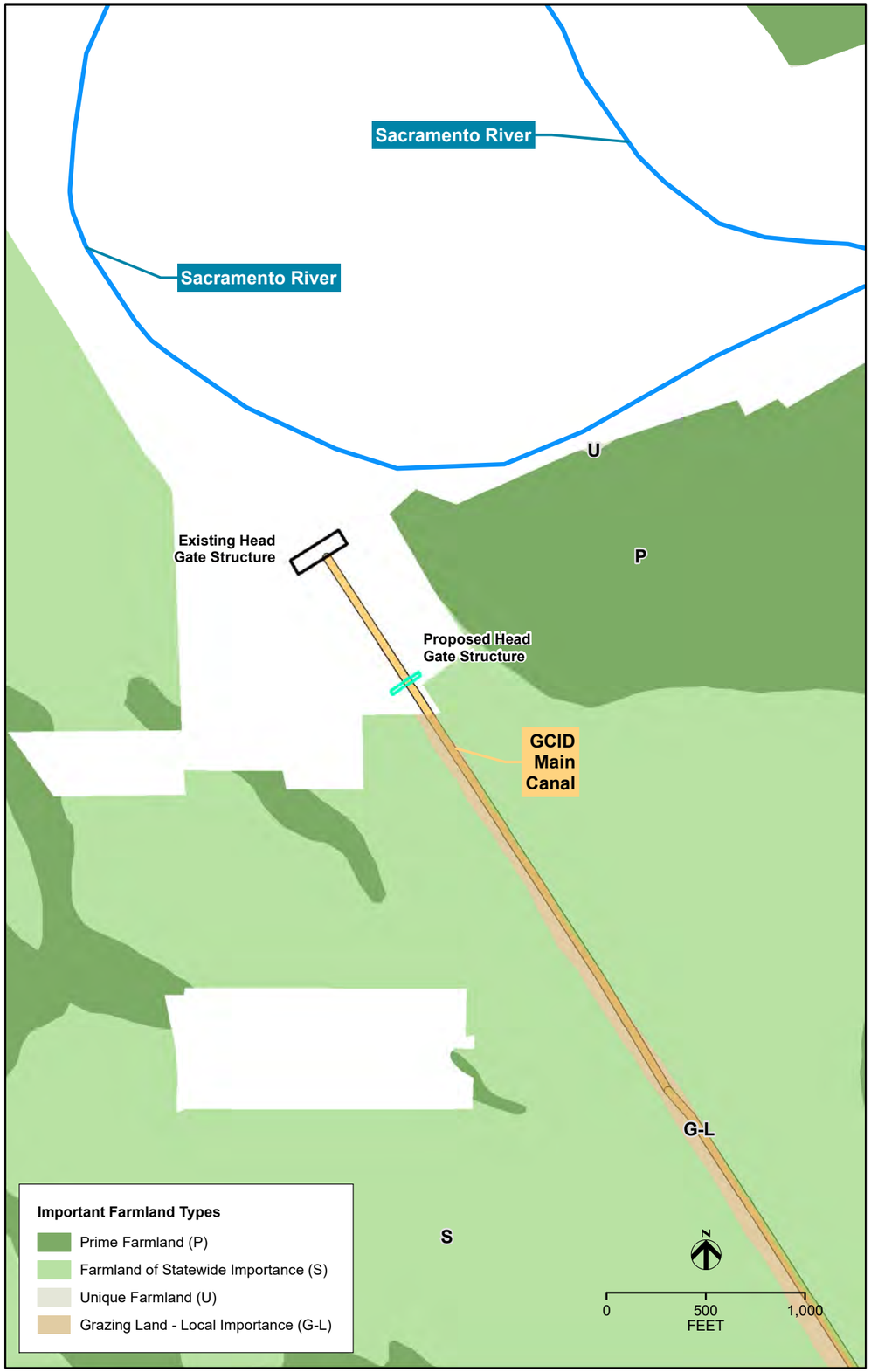

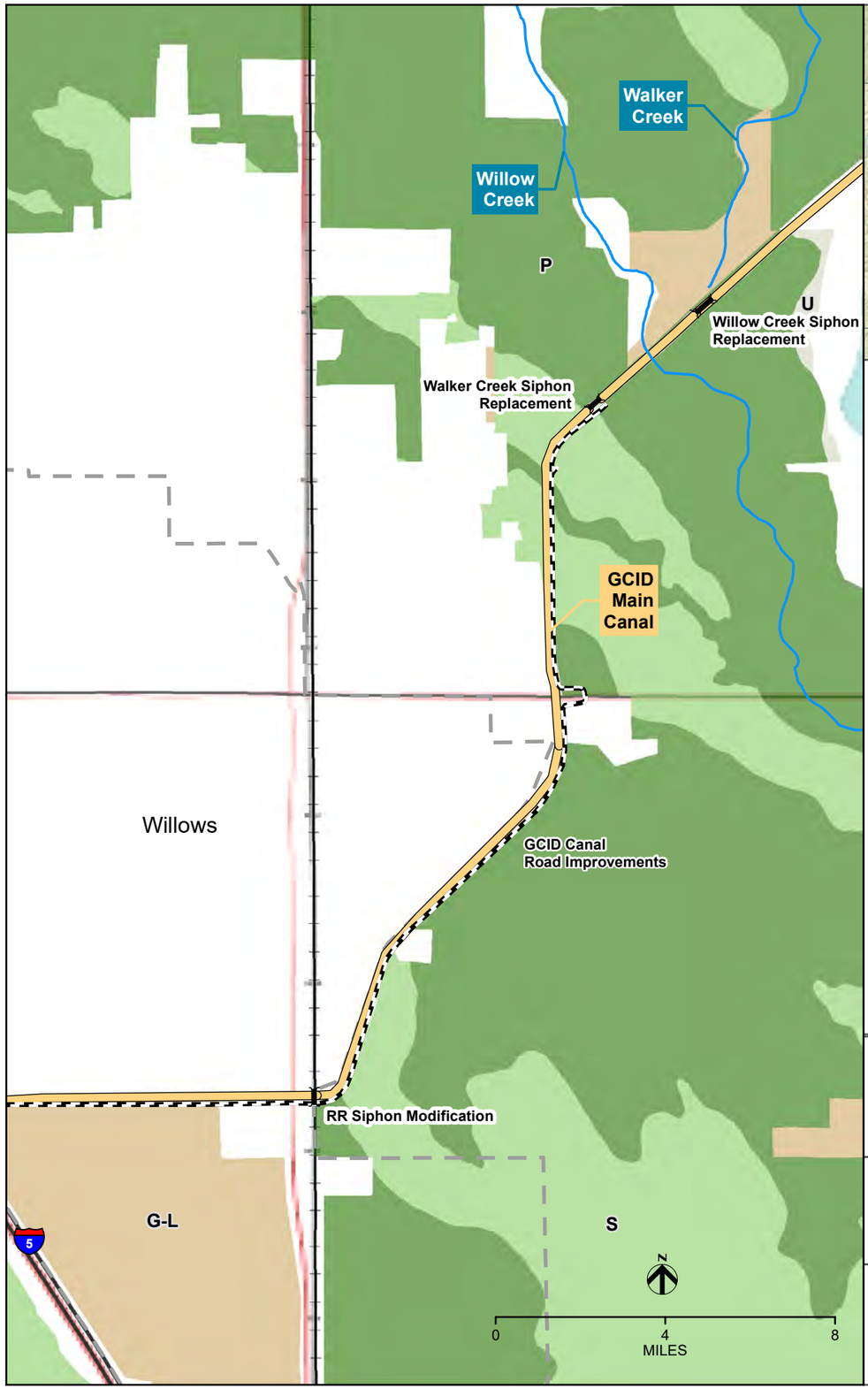

LEGEND

- City Boundary
- Railroads
- River
- Creek/Slough
- Canal

GCID System Upgrades (All Alternatives)

- Siphon Upgrades (Right Map)
- Proposed Head Gate Structure (Left Map)
- GCID Canal Road Improvements

DATA SOURCES: City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canals (NHD) - USGS, 2018; USDA, 2019. Glenn County 2020b, Colusa County 2020b, Yolo County 2020b.

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FIGURE 15-2B

IMPORTANT FARMLAND AND GRAZING LAND IN THE PROJECT AREA

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Tehama-Colusa Canal

Sacramento River

Sacramento River Discharge

Dunnigan Pipeline

Dunnigan/TC Canal Intake

Colusa Basin Drain Discharge

Colusa Basin Drain

G-L

S

P

U

LEGEND

- River
- Canal
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Dunnigan Pipeline Intake/Discharge

Important Farmland Types

- Prime Farmland (P)
- Farmland of Statewide Importance (S)
- Unique Farmland (U)
- Grazing Land - Local Importance (G-L)

DATA SOURCES: Glenn County 2020b, Colusa County 2020b, Yolo County 2020b. Locations - ICF (6/22/2021)

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FIGURE 15-2C

IMPORTANT FARMLAND AND GRAZING LAND IN THE PROJECT AREA

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0 2 4

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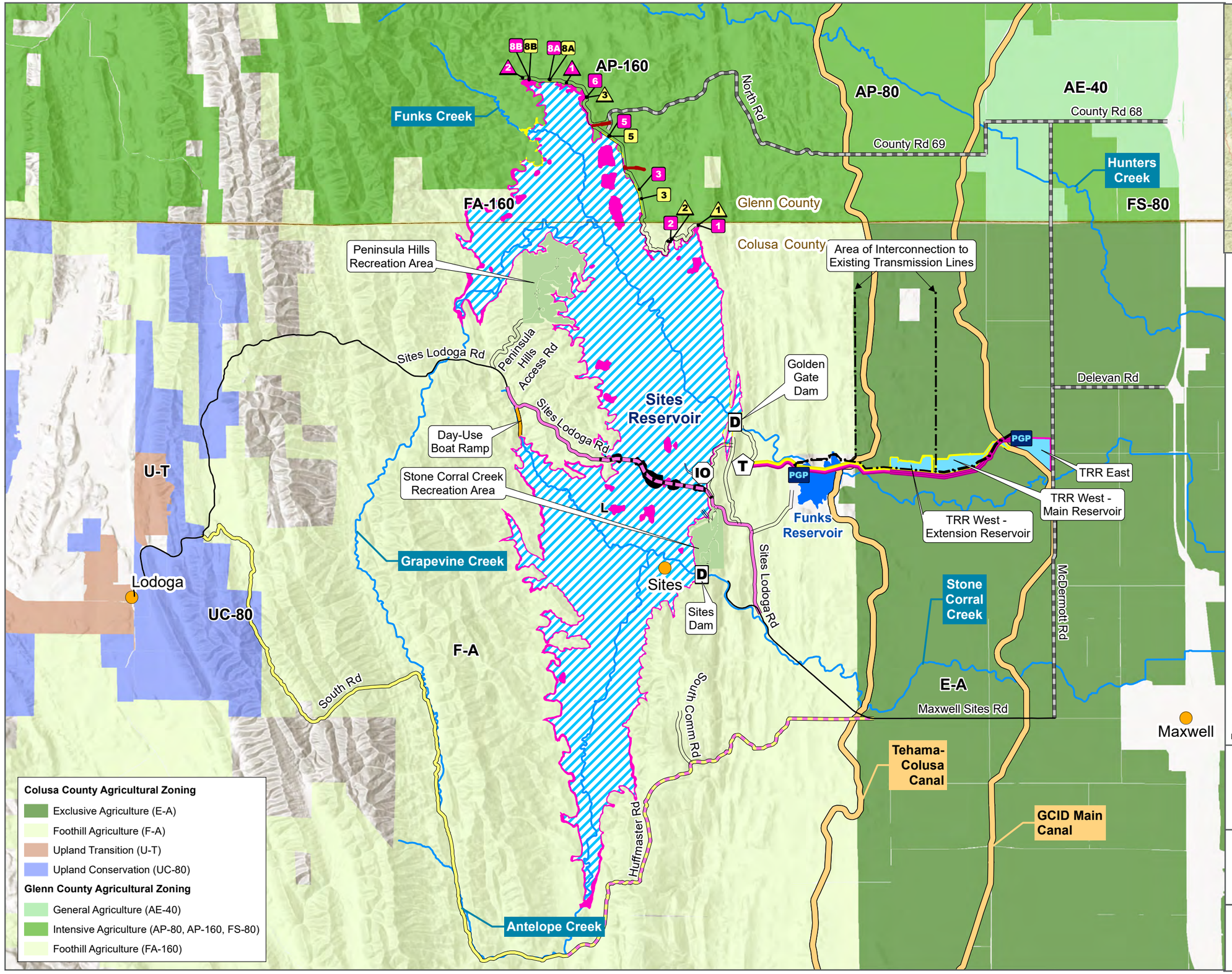

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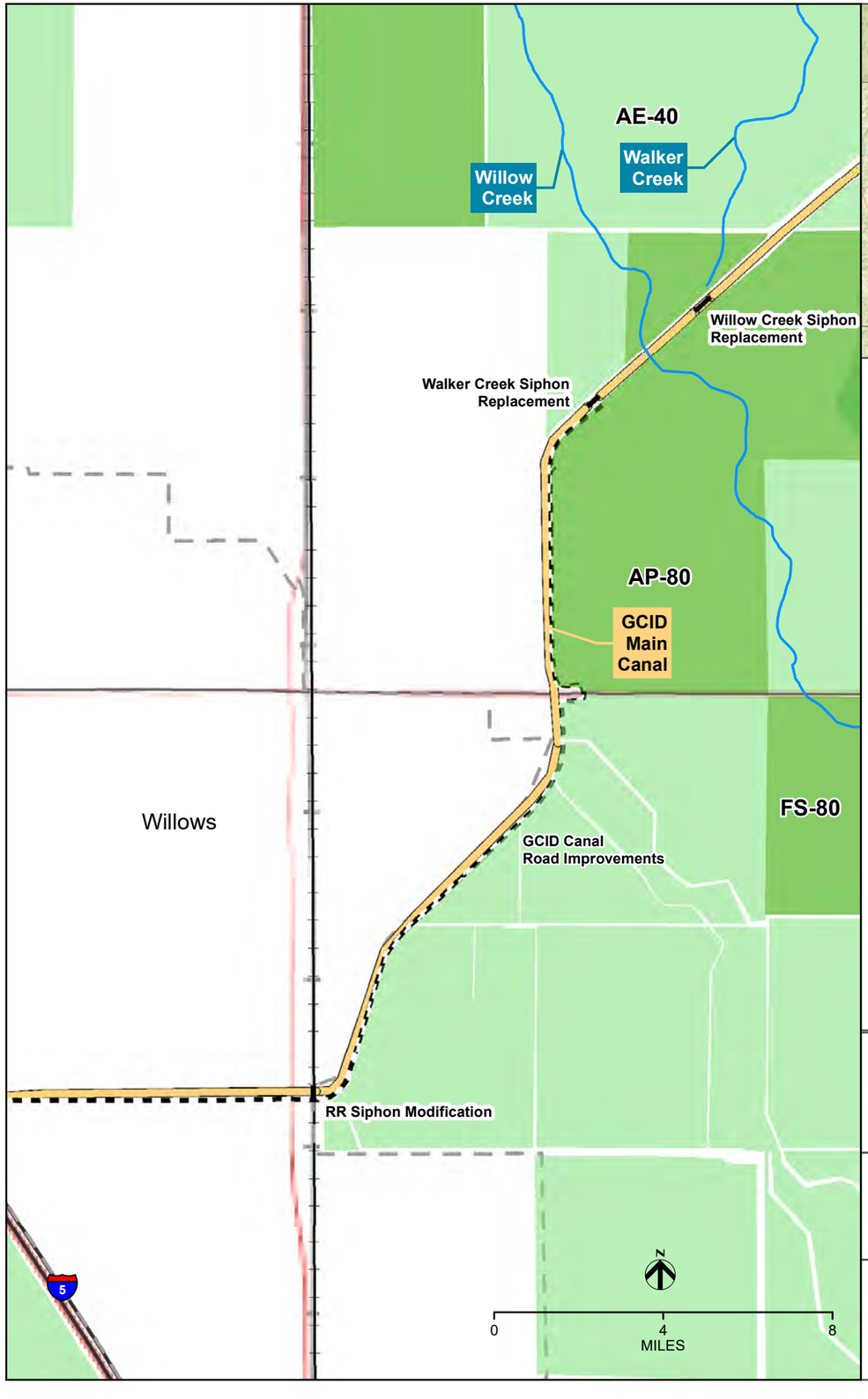

LEGEND

- City Boundary
- Railroads
- River
- Creek/Slough
- Canal

GCID System Upgrades (All Alternatives)

- Siphon Upgrades (Right Map)
- Proposed Head Gate Structure (Left Map)
- GCID Canal Road Improvements

DATA SOURCES: City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canals (NHD) - USGS, 2018; USDA, 2019. Glenn County 2020b, Colusa County 2020b, Yolo County 2020b.

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FIGURE 15-3B

AGRICULTURAL ZONING
IN THE PROJECT AREA

Sites

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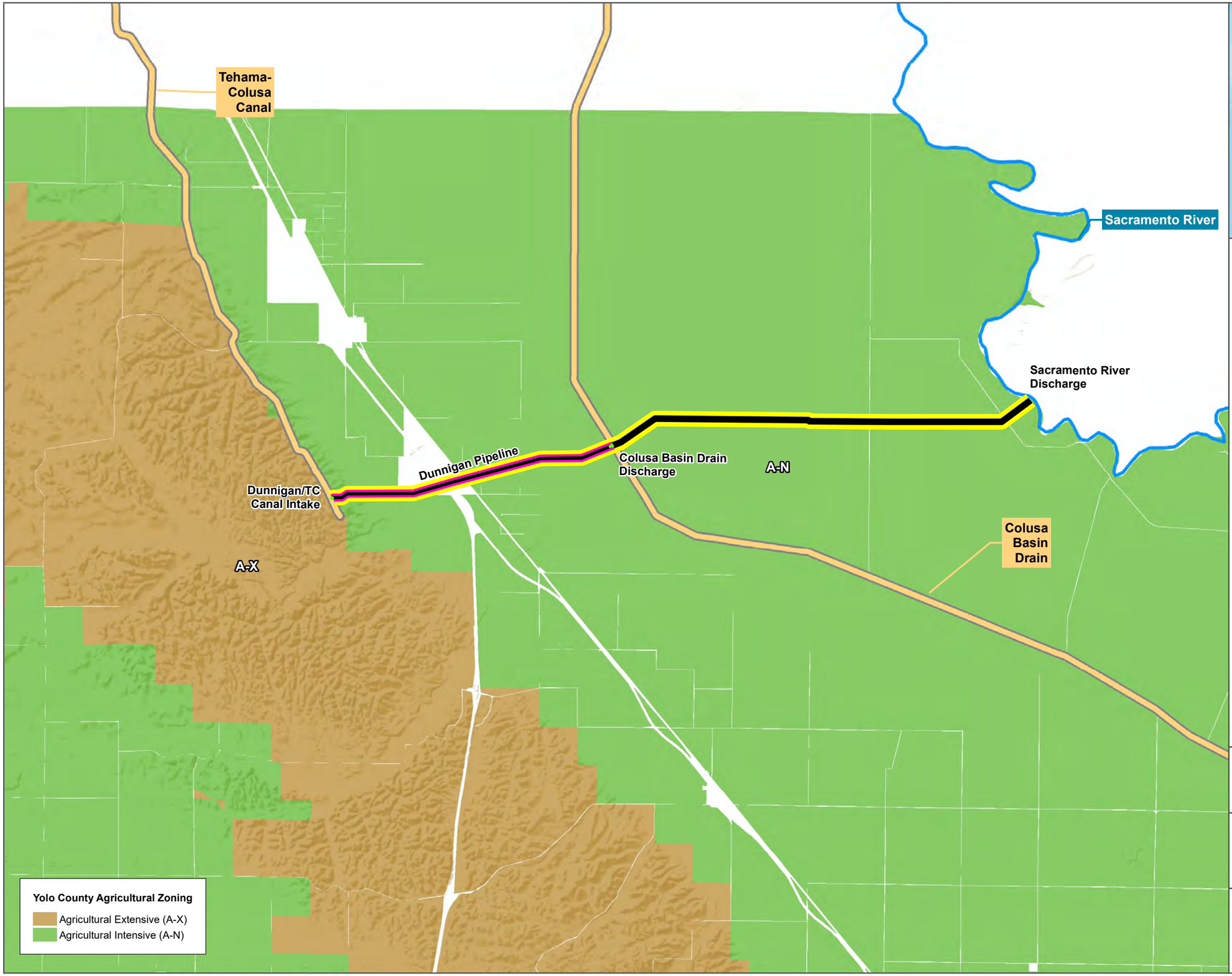

LEGEND

- River
- Canal
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Dunnigan Pipeline Intake/Discharge

DATA SOURCES: Glenn County 2020b, Colusa County 2020b, Yolo County 2020b. Locations - ICF (6/24/2021)

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FIGURE 15-3C

AGRICULTURAL ZONING IN THE PROJECT AREA

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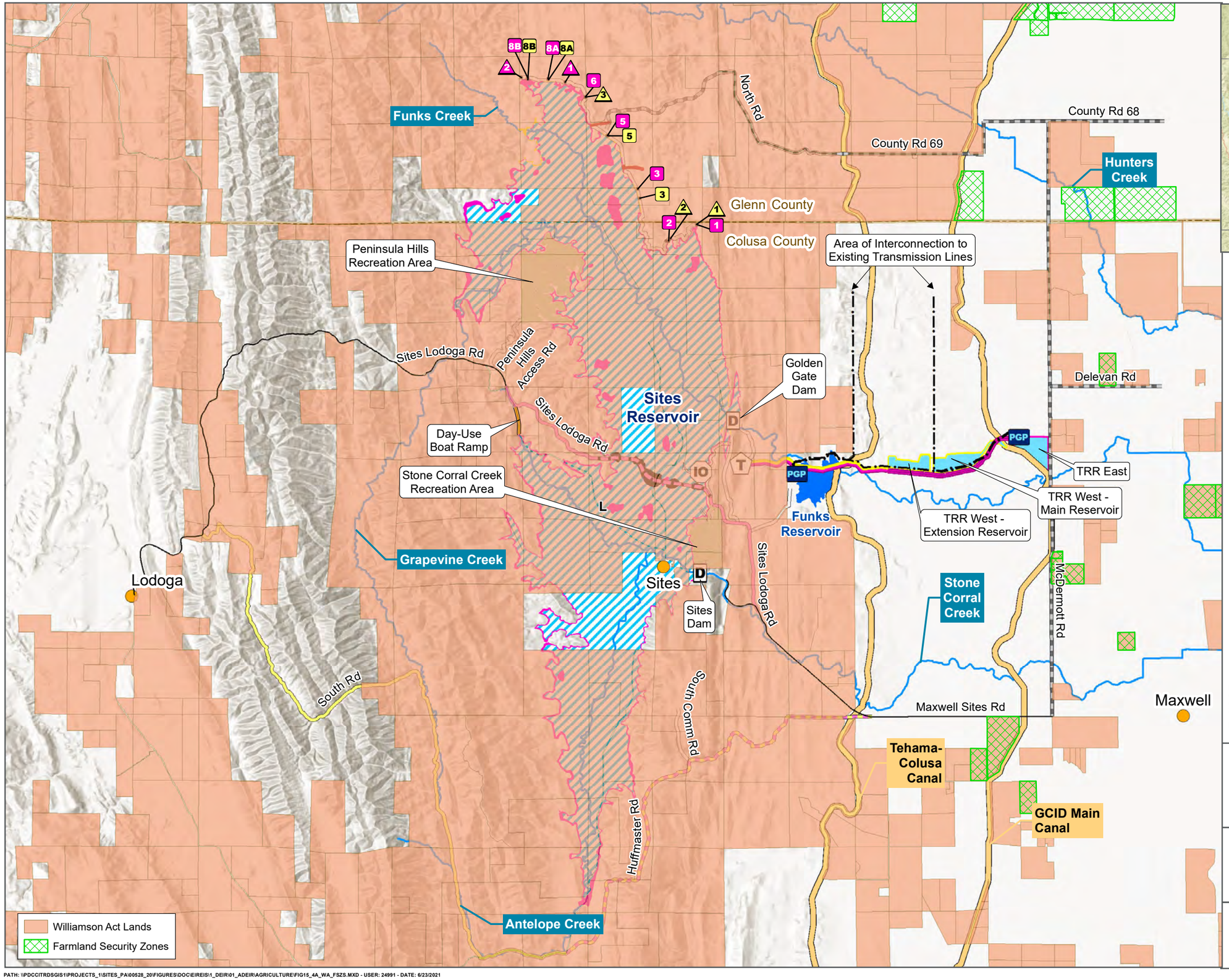

City/Town/Community
Existing Roads
Canal
Creek\Slough

Project Features - All Alternatives

- Inundation Area Common to Alternatives 1, 2 and 3
- Underground Pipelines (4)
- Access Roads
- Road Improvements
- Road Realignment
- Transmission Line
- Day-Use Boat Ramp
- Recreation Areas
- D — Main Dam
- T — Transition Manifold
- IO — Inlet\Outlet Tower
- PGP — Pumping Generating Plant

Project Features - Alternatives 1 and 3

- Inundation Area Exclusive to Alternatives 1 and 3 (Total Inundation for Alts 1 and 3 is 1.5 MAF)
- Saddle Dikes (total of 2)
- 1 — Saddle Dams (total of 7; 8B includes spillway)
- Emergency Release Structure (total of 2)
- Road Realignment
- Bridge with Prism Fill
- Underground Pipelines (4)
- Terminal Regulating Reservoir

Project Features - Alternative 2

- Inundation Area Exclusive to Alternative 2 (Total Inundation for Alt 2 is 1.3 MAF)
- Saddle Dikes (total of 3)
- 1 — Saddle Dams (total of 4; 8B includes spillway)
- Road Realignment
- Terminal Regulating Reservoir

GCID = Glenn-Colusa Irrigation District; MAF = million acre-feet

DATA SOURCES: Glenn County 2020b, Colusa County 2020b, Yolo County 2020b.; City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Aerial Imagery (NAIP) - USDA, 2020; Counties - CALFIRE-FRAP, 2019.

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FIGURE 15-4A

LAND UNDER WILLIAMSON ACT AND FARMLAND SECURITY ZONE CONTRACTS IN THE PROJECT AREA

N

0 1 2
MILES

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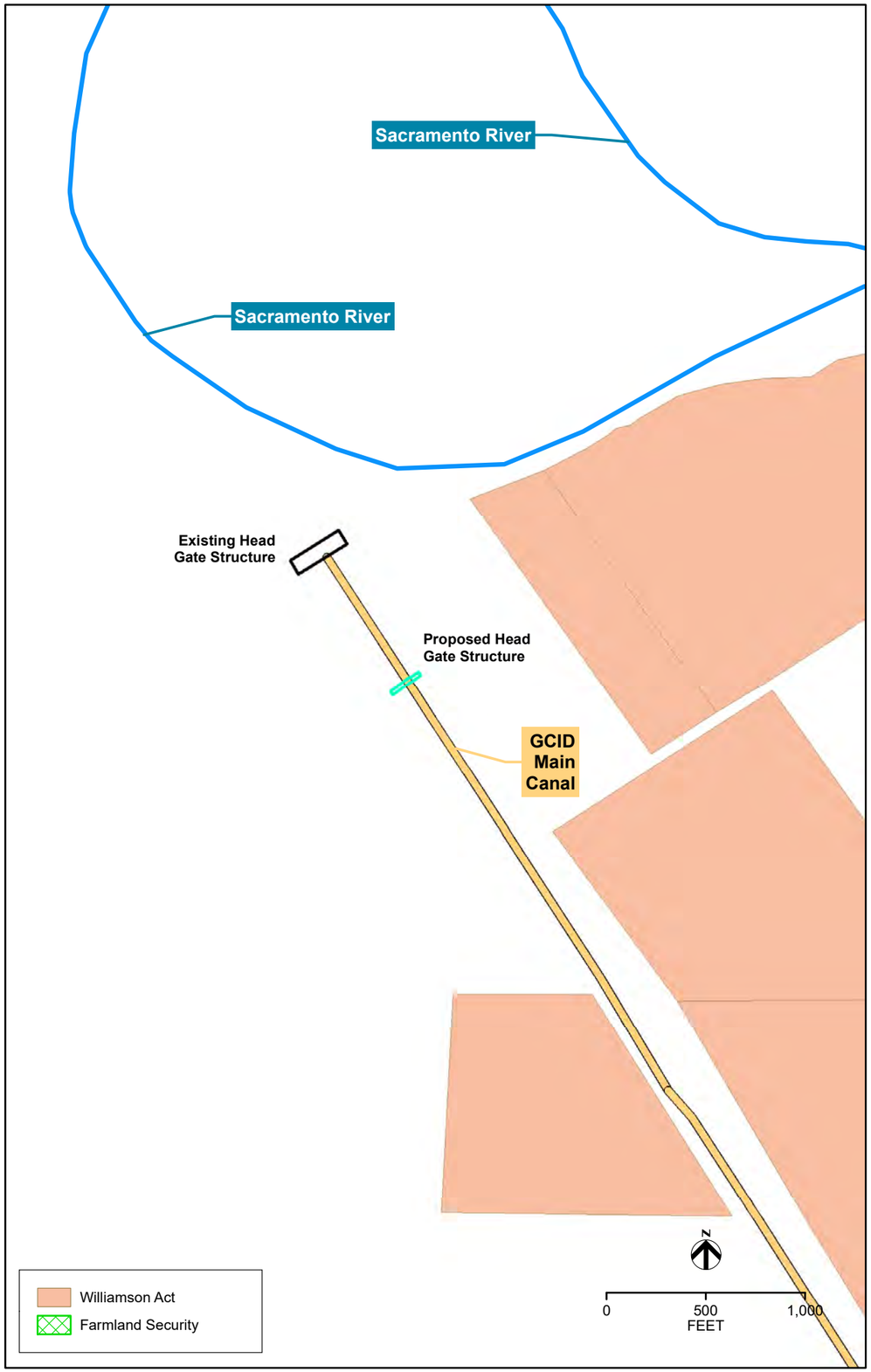

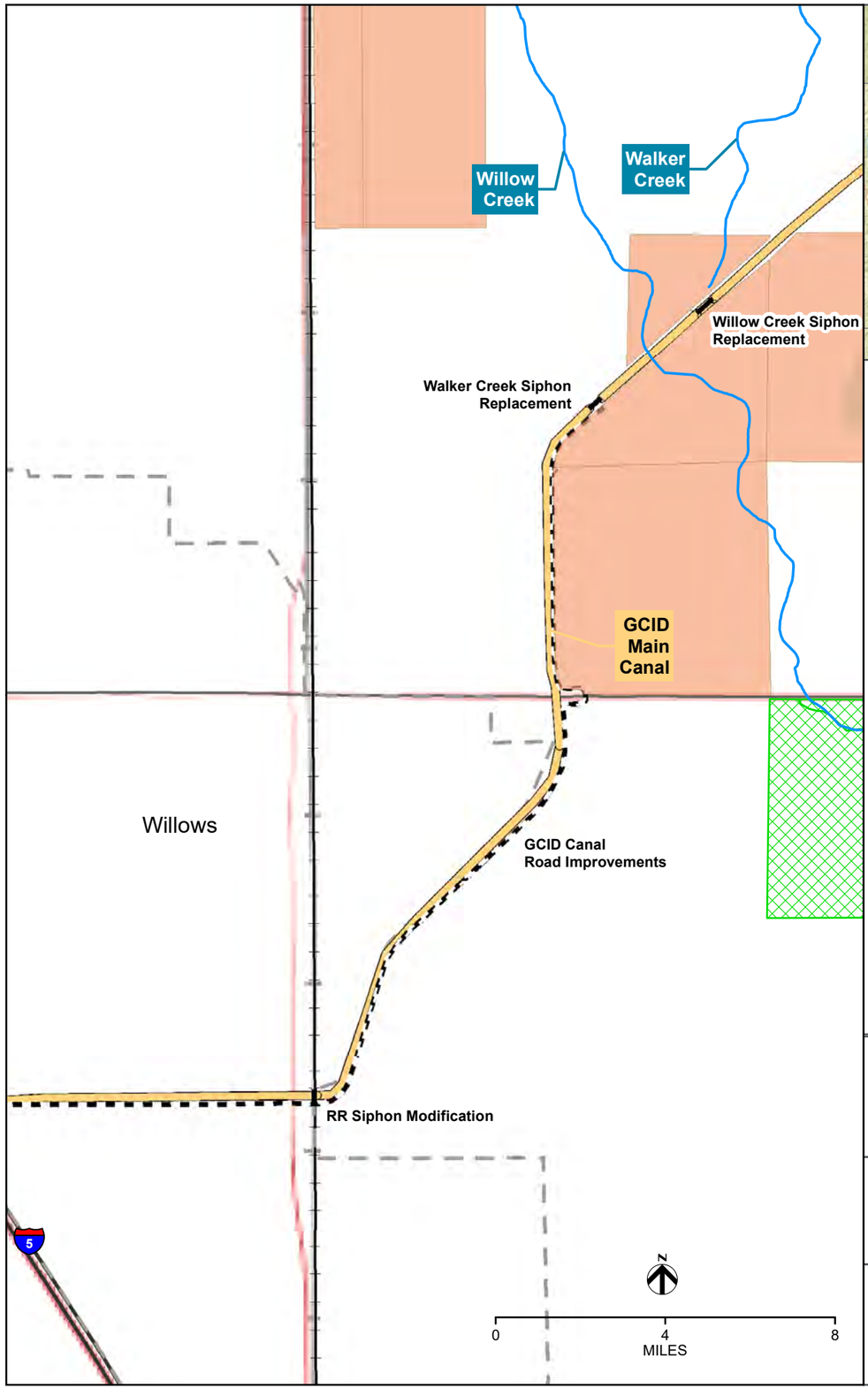

LEGEND

- City Boundary
- Railroads
- River
- Creek/Slough
- Canal

GCID System Upgrades (All Alternatives)

- Siphon Upgrades (Right Map)
- Proposed Head Gate Structure (Left Map)
- GCID Canal Road Improvements

DATA SOURCES: City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canals (NHD) - USGS, 2018; USDA, 2019. Glenn County 2020b, Colusa County 2020b, Yolo County 2020b.

DISCLAIMER: This exhibit is preliminary and is subject to change.
MAP DATE: 6/22/2021

FIGURE 15-4B

LAND UNDER WILLIAMSON ACT AND FARMLAND SECURITY ZONE CONTRACTS IN THE PROJECT AREA

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Tehama-Colusa Canal

Sacramento River

Sacramento River Discharge

Dunnigan Pipeline

Colusa Basin Drain Discharge

Dunnigan/TC Canal Intake

Colusa Basin Drain

Williamson Act Lands

Farmland Security Zones

LEGEND

- River
- Canal
- Dunnigan Pipeline (Alternatives 1 and 3)
- Dunnigan Pipeline (Alternative 2)
- Dunnigan Pipeline Intake/Discharge

DATA SOURCES: Glenn County 2020b, Colusa County 2020b, Yolo County 2020b. Locations - ICF (6/24/2021)

DISCLAIMER: This exhibit is preliminary and is subject to change.

MAP DATE: 6/24/2021

FIGURE 15-4C

LAND UNDER WILLIAMSON ACT AND FARMLAND SECURITY ZONE CONTRACTS IN THE PROJECT AREA

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Glenn County has designated four types of agricultural zoning. Table 15-4 shows the type and acreage of zoned agricultural land throughout the county.

Table 15-4. Zoned Agricultural Land in Glenn County (acres)

Agricultural Zoning	Area
Foothill Agricultural/Forestry Zone (FA)	29,108
Agricultural Preserve Zone (AP)	334,512
Farmland Security Zone (FS)	88,463
Exclusive Agricultural Zone (AE)	126,690
Total	578,774

Source: Glenn County 2020b.
Note: Sum of numbers may not equal total shown due to rounding.

Glenn County participates in Williamson Act and Farmland Security Zone programs. Table 15-5 shows the acreage of land under such contracts throughout the county.

Table 15-5. Land under Williamson Act and Farmland Security Zone Contracts in Glenn County (acres)

Contract Type	Area
Williamson Act	334,074
Farmland Security Zone	90,827
Total	424,901

Source: Glenn County 2020c.

15.2.2. Colusa County

Agriculture is Colusa County's primary industry (Colusa County 2019). Primary crops produced in Colusa County include grassland/pasture, rice, fallow/idle cropland, almonds, and walnuts (U.S. Department of Agriculture 2019).

Agriculture is Colusa County's dominant land use by acreage (California Department of Conservation 2016a). Approximately 76% of the land is agricultural use as described by the FMMP, including grazing. Nearly 43% is designated Important Farmland under the FMMP, 2% is designated Grazing Land, and 40% is designated Farmland of Local Importance. These lands are generally located in the eastern portion of the county and include the study area. Table 15-6 shows the acreage of Important Farmland in Colusa County in 2006 and 2016 (California Department of Conservation 2016a). There was a decrease in Important Farmland of 1.6%, an increase in Grazing Land of 75.3%, and an overall decrease in agricultural land of 0.8% between 2006 and 2016.

Table 15-6. Important Farmland, Farmland of Local Importance, and Grazing Land as Designated under the FMMP in Colusa County in 2006 and 2016 (acres)

Farmland Category	2006	2016	Percent Change
Prime Farmland	200,183	199,521	-0.3
Farmland of Statewide Importance	2,169	2,859	31.8

Farmland Category	2006	2016	Percent Change
Unique Farmland	123,319	118,180	-4.2
Important Farmland Subtotal	325,671	320,560	-1.6
Farmland of Local Importance	232,919	226,528	-2.7
Grazing Land	9,031	15,835	75.3
Agricultural Land Total	567,621	562,923	-0.8

Source: California Department of Conservation 2016a.

In addition, farmland in Colusa County has been mapped under the federal FPPA. Approximately one-half of Colusa County's land is in agricultural use as described by the FPPA (Table 15-7).

Table 15-7. Land under FPPA in Colusa County (acres)

Type	Area
Prime Farmland if irrigated	198,928
Prime Farmland if irrigated and drained	41,084
Farmland of Statewide Importance	26,774
Not Prime Farmland	473,353

Source: Natural Resources Conservation Service 2020.

Colusa County has designated five types of agricultural zoning. Table 15-8 shows the types and acreage of zoned agricultural land throughout the county.

Table 15-8. Zoned Agricultural Land in Colusa County (acres)

Agricultural Zoning	Area
Foothill Agriculture (F-A)	225,019
Exclusive Agriculture (E-A)	313,690
Upland Conservation (U-C)	12,077
Upland Transition (U-T)	1,939
Agricultural Transition (A-T)	3,187
Total	555,912

Source: Colusa County 2020a.

Colusa County participates in Williamson Act and Farmland Security Zone programs. Table 15-9 shows the acreage of land under such contracts throughout the county.

Table 15-9. Land under Williamson Act and Farmland Security Zone Contracts in Colusa County (acres)

Contract Type	Area
Williamson Act	316,616
Farmland Security Zone	57,116
Total	373,732

Source: Colusa County 2020b.

15.2.3. Yolo County

Agriculture is Yolo County's major industry (Yolo County 2020a). Primary crops produced in Yolo County include grassland/pasture, fallow/idle cropland, rice, walnuts, and alfalfa (U.S. Department of Agriculture 2019).

Agriculture is also Yolo County's dominant land use by acreage (California Department of Conservation 2016b). Approximately 82% of the land is dedicated to agricultural use, including grazing as described by the FMMP. Nearly 56% is designated Important Farmland under the FMMP, 26% is designated Grazing Land, and 9% is designated Farmland of Local Importance. These lands are generally located in the eastern portion of the county and include the study area. Table 15-10 shows the acreage of Important Farmland in Yolo County in 2006 and 2016 (California Department of Conservation 2016b). There was a decrease in Important Farmland of 2.7%, an increase in Grazing Land of 10.7%, and an overall decrease in agricultural land of 1.5% between 2006 and 2016.

Table 15-10. Important Farmland, Farmland of Local Importance, and Grazing Land as Designated under the FMMP in Yolo County in 2006 and 2016 (acres)

Farmland Category	2006	2016	Percent Change
Prime Farmland	257,893	250,558	-2.8
Farmland of Statewide Importance	16,988	19,529	15.0
Unique Farmland	50,198	46,095	-8.2
Important Farmland Subtotal	325,079	316,182	-2.7
Farmland of Local Importance	65,171	49,671	-23.8
Grazing Land	150,340	166,413	10.7
Agricultural Land Total	540,590	532,266	-1.5

Source: California Department of Conservation 2016b.

In addition, farmland in Yolo County has been mapped under the federal FPPA. Approximately one-half of Yolo County's land is in agricultural use as described by the FPPA (Table 15-11).

Table 15-11. Land under FPPA in Yolo County (acres)

Type	Area
Prime Farmland if irrigated	313,382
Prime Farmland if irrigated and drained	75,789
Farmland of Statewide Importance	42,387
Not Prime Farmland	299,351

Source: Natural Resources Conservation Service 2020.

Yolo County has designated five types of agricultural zoning. Table 15-12 shows the types and acreage of zoned agricultural land throughout the county.

Table 15-12. Zoned Agricultural Land in Yolo County (acres)

Agricultural Zoning	Area
Agricultural Intensive (A-N)	293,660
Agricultural Extensive (A-X)	216,777

Agricultural Zoning	Area
Agricultural Commercial (A-C)	1,010
Agricultural Industrial (A-I)	1,720
Agricultural Residential (A-R)	0
Total	513,166

Source: Yolo County 2020b.
Note: Sum of numbers may not equal total shown due to rounding.

Yolo County participates in Williamson Act and Farmland Security Zone programs. Table 15-13 shows the acreage of land under such contracts throughout the county.

Table 15-13. Land under Williamson Act and Farmland Security Zone Contracts in Yolo County (acres)

Contract Type	Area
Williamson Act	418,487
Farmland Security Zone	499
Total	418,986

Source: Yolo County 2020b.

The Yolo Bypass is an engineered flood control facility that allows Sacramento River floodwaters to flow onto a broad floodplain (Sommer et al. 2001:6–8). The Yolo Bypass also provides agricultural land, seasonal and permanent wetlands, and key habitat for migrating waterfowl. The Yolo Bypass has been operating since the early 1930s. It covers approximately 59,000 acres and is located in Yolo County. Approximately two-thirds of the land in the seasonally inundated Yolo Bypass is used for agriculture during the late spring and summer, when inundation is uncommon (Sommer et al. 2001:9, 10). Late storms can delay drainage of the Yolo Bypass, thus also postponing spring planting. The primary crop planted in the Yolo Bypass is rice. All Important Farmland acreage in Yolo County where the Yolo Bypass is located is described above.

Agriculture is the dominant land use in the CBD watershed (Gray and Pasternack 2016:14, 15). Rice is the primary crop in the areas with low-permeability, low-drainage soils, and orchards and row crops are the primary crops in areas with better drainage. All Important Farmland acreage in the counties where the CBD is located is described above in Section 15.2.1, *Glenn County*; Section 15.2.2, *Colusa County*; and Section 15.2.3, *Yolo County*. Land use in the foothills near the CBD includes rangelands for livestock.

15.3 Methods of Analysis

Quantitative analysis of the Project's potential construction and operations impacts on FMMP Important Farmland as designated by the California Department of Conservation, FPPA Important Farmland as designated by the NRCS, zoning, and parcels under Williamson Act or Farmland Security Zone contract is based on a review of spatial data from multiple sources. These sources address FMMP designations, FPPA designations, zoning designations,

Williamson Act and Farmland Security Zone contracts, parcel boundaries, Timberland Production Zones and U.S. Forest Service data, and NRCS Gridded National Soil Survey information (California Department of Conservation 2016c, 2018b; Natural Resources Conservation Service 2020; Glenn County 2020a, 2020b, 2020c, 2020d; Colusa County 2020a, 2020b; Yolo County 2020b; U.S. Forest Service 2020). Temporary and permanent direct impacts on Important Farmland as designated under FMMP, permanent direct impacts on agricultural zoning[3] and Williamson Act and Farmland Security Zone contracts, and direct impacts on Important Farmland as designated under FPPA were determined by overlaying spatial data representing these designations with geographic information system (GIS) data of footprints of the alternatives' temporary construction work areas or permanent facilities.

To determine potential impacts on Important Farmland as designated under FMMP resulting from creation of remnant parcels of Important Farmland, remnant parcels under 20 acres adjacent to new roadwork were identified by combining GIS data of the alternatives' footprints with GIS data identifying Important Farmland, as mapped under the FMMP (California Department of Conservation 2016c, 2018b), and Assessor's Parcel Number (APN), as mapped by each County (Glenn County 2020d, Colusa County 2020a, Yolo County 2020b). This analysis identified remnant parcels adjacent to new roadwork that were less than 20 acres per parcel.

To determine potential impacts on land under Williamson Act or Farmland Security Zone contract resulting from creation of remnant parcels with Williamson Act/Farmland Security Zone land, remnant parcels under County thresholds, as shown in Table 15-14, were identified by combining GIS data of the alternatives' footprints with GIS data showing parcels under such contracts, as mapped by each County (Glenn County 2020c, Colusa County 2020b, Yolo County 2020b), and APN, as mapped by each County (Glenn County 2020d, Colusa County 2020a, Yolo County 2020b). This analysis identified remnant parcels of Williamson Act/Farmland Security Zone land that would fall below County thresholds for minimum parcel size to qualify for such contracts. None of the alternatives would affect any parcels under Farmland Security Zone contract.

Table 15-14. Williamson Act Minimum Parcel Size Requirements by County

County	Prime	Nonprime
Glenn County	36	144
Colusa County	10 [a]	40 [a]
Yolo County	40	80 (irrigated) or 160 (not capable of irrigation)

Sources: Glenn County 2016b, California Department of Conservation 2019, Yolo County 2017.
Notes:
[a] Minimum parcel sizes for parcels under Williamson Act contract in Colusa County were assumed to be the same as those established in Government Code Title 5, Chapter 51222.

Some Williamson Act remnant parcels would be created because of adjacency to multiple Project components, as opposed to a single Project component. However, this analysis attributes

[3] As described in Chapter 14, Land Use, the analysis of potentially applicable zoning ordinances considers all Project facilities equally, without distinguishing among facilities that will be, may be, or will not be directly subject to county or city zoning.

each remnant parcel to an individual Project component according to this hierarchy: roads, inundation area, recreation areas, Sites Reservoir and related facilities, and dams and dikes.

Analysis for the potential for Sites Reservoir releases to result in inundation to the Yolo Bypass and CBD and thus potentially result in conversion of agricultural land to nonagricultural uses was based on hydraulic modeling (Sites Program Management Team 2020). To determine potential impacts on Important Farmland resulting from inundation at the Yolo Bypass, modeling results simulating Sites Reservoir releases to exceed capacity of the Tule Canal and Toe Drain were considered. To determine potential impacts on Important Farmland resulting from inundation at the CBD, modeling considered potential for Sites Reservoir releases to flood fields adjacent to the CBD. Because fields drain to the CBD, high water levels in the CBD potentially could seep out of the CBD onto low-lying fields that typically drain to the CBD. The most likely location to flood along the CBD is at River Mile 8.9, where there is a field at an elevation of 25.3 feet North American Vertical Datum 88. When water surface elevation in the CBD reaches 25.3 feet, water may seep onto this field. Modeling identified the flows that could be released from Sites Reservoir and added to existing flows in the CBD without flooding this field.

The following BMPs, described in Appendix 2D, *Best Management Practices, Management Plans, and Technical Studies*, are incorporated into the analysis of potential construction and operations impacts on agricultural resources.

- BMP-10, Salvage, Stockpiling, and Replacement of Topsoil and Preparation of a Topsoil Storage and Handling Plan, reduces and minimizes loss of topsoil necessary for agricultural productivity.[4]
- BMP-13, Development and Implementation of Spill Prevention and Hazardous Materials Management/Accidental Spill Prevention, Containment, and Countermeasure Plans (SPCCPs) and Response Measures, reduces and prevents spills and leaks of hazardous or petroleum materials and require cleanup provisions in case of spills and leaks, which would protect agricultural productivity.
- BMP-36, Control of Invasive Plant Species during Construction, requires recontouring of disturbed areas in order to minimize disturbance to agricultural productivity as well as minimize new populations of invasive plant species that could interfere with agricultural productivity.

The following existing roads were not included in impact calculations because all modifications would be done within the existing right-of-way: Road 69, Road 68, Road D, McDermott Road, Delevan Road, and Maxwell Sites Road.

Qualitative analysis of the Project's potential operations impacts on land in agricultural use as a result of changes resulting from new Sites Reservoir water releases is based on modeling and GIS data sources. Potential impacts on agricultural land include changes in inundation and drainage patterns, changes in contaminant levels of arsenic and methylmercury, and changes in water temperature. Identification of agricultural land was based on California Department of

[4] BMP-10 would not apply in the inundation area of Sites Reservoir and the TRRs.

Water Resources' Fine-Scale Riparian Vegetation Mapping of the Central Valley Flood Protection Plan Area (California Department of Water Resources 2013).

Potential changes in inundation were evaluated for the Yolo Bypass, Sutter Bypass, and CBD. Changes in inundation were based on HEC-RAS modeling of fish habitat (less than 1 meter deep), which used the CALSIM result as input. See Appendix 11M, *Inundated Floodplain and Side-Channel Habitat Analysis, including Yolo and Sutter Bypasses,* for more details regarding modeling of inundation in Yolo Bypass and Sutter Bypass.

Modeling results and measured data were used to evaluate concentrations of methylmercury and arsenic. To evaluate changes in methylmercury, CALSIM II modeling results were reviewed to determine the magnitude and timing of reservoir end-of-month storage, releases, and flow conditions throughout the year. Changes in arsenic levels were based on a comparison between measured arsenic levels in the Sacramento River and modeled arsenic levels during the operational period, accounting for results from evapoconcentration (Section 6.3, *Methods of Analysis*).

Changes in Sites Reservoir release temperatures were based on CE-QUAL-W2 modeling (see Section 6.3, *Methods of Analysis*). The monthly average temperatures for months with more than 5 days of Sites Reservoir releases were evaluated. The impact analysis considered the modeled average temperature and the modeled worst-case scenario (defined by the 90% exceedance).

15.3.1. Thresholds of Significance

An impact on agriculture would be considered significant if the Project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.

In addition, because of the federal FPPA lands located in the study area, the following threshold is also evaluated for NEPA only:

- Convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the federal FPPA, to nonagricultural use.

Finally, because the Project alternatives could result in other changes to the existing environment (e.g., water temperature during the rice-growing season) that could convert designated farmland, the following threshold is evaluated for CEQA and NEPA:

- Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the FMMP of the California Resources Agency or under the federal Farmland Protection Policy Act, to nonagricultural use.

15.4 Impact Analysis and Mitigation Measures

Impact AG-1: Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use

No Project

The No Project Alternative would not construct or operate any new Project facilities. As described in Section 15.2, *Environmental Setting*, more than 900,000 acres of Important Farmland occur in the study area. Conversion of Important Farmland to nonagricultural uses has been low in all three counties over the past two decades. Under the No Project Alternative, planned and committed projects would be constructed, all of which could result in conversion of Important Farmland, but past rates of conversion are likely to prevail. Therefore, under the No Project Alternative, rates of conversion of Important Farmland to nonagricultural use are likely to remain low.

Because the No Project Alternative would not construct or operate new Project facilities, there would be no temporary change in Important Farmland as a result of temporary construction staging or other disturbance. In addition, there would be no conversion of Important Farmland to nonagricultural uses as a result of placement of aboveground Project facilities on Important Farmland because facilities associated with the Project would not be constructed or operated.

Significance Determination

Impacts would not occur because there would be no temporary use of Important Farmland for construction staging or other disturbance, which potentially could result in conversion to nonagricultural uses. Furthermore, there would be no permanent placement of aboveground Project facilities on Important Farmland, which would result in conversion to nonagricultural uses.

Alternatives 1, 2, and 3

Important Farmland occurs in the study area for Alternatives 1, 2, and 3. Table 15-15 shows the area of Important Farmland both temporarily and permanently disturbed by county and Project component for all alternatives. Areas where remnant parcels of Important Farmland are created may be vulnerable to increased risk of conversion because they may no longer be economically viable to farm.

Table 15-15. FMMP Important Farmland Temporarily Disturbed and Permanently Converted by Project Facilities under All Alternatives (acres)

Project Facilities	Important Farmland Classification	Temporary Disturbance	Temporary Disturbance	Permanent Conversion	Permanent Conversion
		Alt 1 & Alt 3	Alt 2	Alt 1 & Alt 3	Alt 2
Glenn County					
Conveyance to Regulating Reservoirs	Prime Statewide Unique	20 6 --	20 6 --	-- -- --	-- -- --
Glenn County Total	–	26	26	--	--
Colusa County					
Regulating Reservoirs and Conveyance Complex	Prime Statewide Unique	30 2 2	5 2 --	144 -- 2	12 -- 3
Roads	Prime Statewide Unique	-- -- --	-- -- --	6 -- --	-- -- --
Colusa County Total	–	34	7	152	15
Yolo County					
Conveyance to Sacramento River	Prime Statewide Unique	60 12 2	184 12 3	-- -- --	2 -- --
Yolo County Total	–	74	199	--	2-
Counties Grand Total	–	**134**	**232**	**152**	**17**

Alt = alternative; -- = <0.01 acre or none.

Construction

Construction activities, including staging, vegetation removal, excavation, and grading, would result in temporary use of Important Farmland as designated under FMMP. Important Farmland that has been identified for temporary use would be temporarily removed from agricultural use for the duration of construction. Construction could occur between 2 years (e.g., Dunnigan Pipeline) and 6 years (e.g., reservoir facilities) depending on the facility constructed.

As shown in Table 15-15, fewer acres of Important Farmland would be temporarily used under Alternatives 1 and 3 than under Alternative 2. To address temporary disturbance of agricultural land as a result of construction, all alternatives include requirements to prepare a topsoil storage and handling plan (BMP-10), develop and implement a plan for preventing and containing spills of hazardous materials (BMP-13), and control invasive plant species during construction (BMP-36). These BMPs would allow soil to be returned to its original condition and keep those areas that are not permanently converted to nonagricultural uses capable of supporting agricultural uses after construction. BMP-10 would prevent the loss of topsoil through preserving soil and reapplying topsoil once construction is complete, and BMP-13 would prevent the contamination of soil by implementing required handling and disposal of hazardous materials. Implementing BMP-10, BMP-13, and BMP-36 would result in restoration of Important Farmland disturbed during construction to preconstruction conditions. Therefore, agricultural productivity and associated soil properties would not be reduced as a result of construction.

Operations

Permanent conversion of Important Farmland designated under FMMP to nonagricultural use would occur where aboveground facilities associated with all alternatives would be located on Important Farmland designated under FMMP. Alternatives 1, 2, and 3 would not result in direct permanent conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to nonagricultural uses in Glenn County (Table 15-15). Alternatives 1 and 3 would result in direct permanent conversion of more Prime Farmland and Unique Farmland to nonagricultural uses than Alternative 2 in Colusa County. Alternatives 1 and 3 would not result in direct permanent conversion of Important Farmland to nonagricultural uses in Yolo County. Alternative 2 would result in a permanent conversion of a small acreage of Prime Farmland in Yolo County as a result of the Sacramento Discharge and a permanent road to the discharge location when compared to existing conditions. Overall, more acres of Important Farmland would be permanently converted to nonagricultural use under Alternatives 1 and 3 than under Alternative 2.

Permanent conversion of FMMP Important Farmland to nonagricultural use would also occur where roads would create unusable remnant parcels of Important Farmland. Alternative 2 would not create any unusable remnant parcels of Important Farmland. Alternatives 1 and 3 would create one remnant parcel unusable for continued agricultural productivity of a total of 0.2 acre in Colusa County. Overall, very few to no remnant parcels would be created under Alternatives 1 and 3, and none would be created under Alternative 2.

Alternatives 1, 2, and 3 are meant to increase water reliability to Storage Partners, including Reclamation. As evidenced by CEQA Objective-1 (OBJ-1) and Objective 3 (OBJ-3):

- OBJ-1 of the Project is to improve water supply reliability and resiliency to meet Storage Partners' agricultural and municipal long-term average annual water demand in a cost-effective manner for all Storage Partners, including those that are the most cost-sensitive.
- OBJ-3 of the Project is to provide public benefits consistent with the WIIN Act by using federal funds, if available, provided by Reclamation to improve CVP operational flexibility in meeting CVP environmental and contractual water supply needs.

A number of the Storage Partners are irrigation districts that provide water to existing agricultural lands, including acres that are Important Farmland in Glenn, Colusa, and Yolo Counties, as well as south-of-Delta. As indicated in the description of Sites Reservoir operation, the Storage Partners would primarily receive water May to November (i.e., irrigation season), particularly in Dry and Critically Dry Water Years. Increased water supply reliability would allow some land classified as Important Farmland to remain in production during times it may have otherwise been fallowed or taken out of production for longer periods because of lack of water.

CEQA Significance Determination and Mitigation Measures

Ground disturbance on Important Farmland as a result of construction-related activities associated with Alternative 1, 2, or 3 includes staging, vegetation removal, excavation, and grading. A total of 134 acres of Important Farmland would be temporarily disturbed under Alternative 1 or 3 and 232 acres under Alternative 2. Implementing BMP-10, BMP-13, and BMP-36 would result in restoration of Important Farmland disturbed during construction to preconstruction conditions. Accordingly, impacts from temporary use of Important Farmland during construction would be less than significant.

Permanent placement of underground Project facilities associated with Alternative 1, 2, or 3 on Important Farmland would not result in permanent conversion to nonagricultural uses in Glenn, Colusa, or Yolo Counties. Placement of aboveground Project facilities associated with the three alternatives would result in permanent conversion of Important Farmland as a result of direct placement on Important Farmland. A total of 152 acres of Important Farmland would be permanently converted to nonagricultural uses by Alternative 1 or 3 and 17 acres by Alternative 2. A total of 0.2 acre of Important Farmland would be permanently converted to nonagricultural uses as a result of remnant parcels due to road construction under Alternatives 1 and 3. Alternative 2 would not create remnant parcels of Important Farmland. Overall, Alternatives 1 and 3 would result in direct permanent conversion of approximately 0.02% of the total Important Farmland as classified under FMMP in the study area, and Alternative 2 would result in permanent conversion of less than 0.01%. Although the percentage of land affected by alternatives is small and the magnitude of the impact small, because the alternatives would result in permanent conversion of Important Farmland to nonagricultural uses, this impact would be significant.

Implementation of Mitigation Measure AG-1.1 for Alternatives 1, 2, and 3 would reduce impacts as a result of permanent conversion of Important Farmland to nonagricultural uses. This mitigation measure would require the Authority to fund acquisition of agricultural conservation easements in the same agricultural region (i.e., Glenn, Colusa, and Yolo Counties) in which the

impacts occur. Purchasing agricultural conservation easements or donating to mitigation fees[5] to preserve regional important farmland would only ensure continued productivity and preservation of existing Important Farmland. It is consistent with the Project objectives to support agriculture and provide a reliable water supply to agriculture. The measure would not replace or restore the acres of Important Farmland permanently converted to nonagricultural uses under each alternative. Therefore, while this measure is feasible and would partially mitigate the impact, it would not reduce impacts to less than significant. The impact would remain significant and unavoidable under all alternatives.

It is infeasible to restore Important Farmland converted as a result of facilities as a mitigation measure because the Project consists of permanent facilities that, once in place, cannot be easily removed. There is no ability to restore land used for this type of water infrastructure project like there is for other infrastructure projects, such as solar farms or oil and gas development. Once the use of the land as a solar farm or oil and gas well ceases after a period of time (e.g., 25 years), the majority of land can be restored to its previous agriculture use if the landowner decides and depending on the terms and conditions of lease agreements. There is no ability to contemplate such restoration under Alternative 1, 2, or 3.

Restoring existing vacant nonagricultural lands offsite from the Project that have been out of agricultural production into Important Farmland would replace the lost Important Farmland due to permanent footprints of facilities. However, Important Farmland restoration is infeasible as a mitigation measure due to several factors, including lack of available land, the price of land, and different socioeconomic decisions. In the last decade, it has become a trend of investors to purchase agricultural land in the hopes of selling to developers at a profit. Other investors see agribusiness as a stable long-term investment due to the fact that arable farmland per capita has decreased by nearly half over the last 50 years. These and other factors have caused the average price of farmland nationwide to double over the last 10 years. In Glenn and Colusa Counties, the price of productive farmland has risen to approximately $9,000 and $8,000 per acre, respectively (U.S. Department of Agriculture 2017). Further, unlike restoration/preservation for biological purposes, retaining or restoring agricultural land is dependent upon a multitude of socioeconomic decisions. The counties cannot mandate that restored agricultural mitigation land be farmed. Rather, the individual farmers/landowners make decisions based on crop prices, availability of labor, input prices (seed, fuel, pesticides, fertilizer), the price and availability of water, land productivity, and a host of other factors. In addition, while finding productive agricultural land is driven by the market, soils, and water availability, there are several other trends that are working against keeping land in agricultural production. After peaking at 6.8 million farms in 1935, the number of U.S. farms fell sharply until the early 1970s (U.S. Department of Agriculture 2021). Mirroring the reduction in farms is a trend downward in young farmers entering the industry;

[5] The proposed conservancy program to receive mitigation fees for the Project is the California Farmland Conservancy Program (see Mitigation Measure AG-1.1). The California Farmland Conservancy Program is a statewide grant program under the auspices of the DOC. The program provides funding across California to protect agricultural lands under threat of conversion to nonagricultural uses through the acquisition of voluntary, permanent agricultural conservation easements. The program also provides funding for the improvement of lands protected by existing California Farmland Conservancy Program agricultural conservation easements or of lands protected by other qualified conservation easement programs, if the improvement will directly benefit lands protected by California Farmland Conservancy Program easements.

resulting in a corresponding upward trend in the average age of farmers, which has increased 7 years over the last 30 years (U.S. Department of Agriculture 2017). Further, during the same time period, mid-sized farms (50–999 acres) have largely disappeared, reflecting a trend toward consolidation and large corporate farms. Another trend is returns (profits) to farm operators (after expenses), which, adjusted for inflation, reached a peak in the mid-to-late 1940s but has generally trended downward from the 1950s through the 1990s. During the 1980s in particular, returns were approximately one-third of the peak in the late 1940s. These barriers to entry mean that there are no feasible methods to guarantee that farmland could be restored (as mitigation) and put into production at a point where farmers could profitably produce. It is equally as likely that restored land would be purchased and held by investors as a long-term investment or for sale to developers (Ecology Center 2015). Given the factors described above, restoration of existing nonvacant land to Important Farmland is infeasible as a mitigation measure.

Mitigation Measure AG-1.1: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland

Prior to the commencement of any Project activities that would result in the permanent conversion of Important Farmland, the Authority will enter into an agreement with the DOC California Farmland Conservancy Program to mitigate for the permanent conversion of Important Farmland through purchase of agricultural easements. The Authority will fund the California Farmland Conservancy Program to enable them to (1) identify suitable agricultural land for mitigation of Project impacts and (2) fund the purchase of agricultural conservation easements from willing sellers. The Authority will coordinate with the California Farmland Conservancy Program to identify suitable lands and purchase agricultural conservation easements from willing sellers at a ratio of at least 1:1 to preserve Important Farmland in an amount commensurate with the quantity and quality of converted farmlands.

Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract

No Project

The No Project Alternative would not construct or operate any new Project facilities. As described in Section 15.2, *Environmental Setting*, more than 1.6 million acres of land zoned for agricultural use occur in the study area, and over 1.2 million acres of land under Williamson Act or Farmland Security Zone contract occur in the three counties. Because the State of California ceased issuing subvention funds to Counties to replace tax dollars foregone for lands under Williamson Act and Farmland Security Zone contract in 2010, the rate of enrollment in the three counties may decrease. Because the No Project Alternative would not construct or operate new Project facilities, there would be no change to lands zoned for agricultural use or for lands under Williamson Act or Farmland Security Zone contract as a result of the Project.

Significance Determination

The No Project Alternative would result in no impact or effect as a result of conflicts with existing zoning for agricultural use or lands under Williamson Act or Farmland Security Zone contract.

Alternatives 1, 2, and 3

Lands zoned for agricultural use and lands under Williamson Act contract occur in the study area for Alternatives 1, 2, and 3. Section 51238 of the Government Code provides that the erection, construction, alteration, and maintenance of water facilities are determined to be compatible uses within an agricultural preserve under the Williamson Act. This provision further states no land occupied by water facilities shall be excluded from an agricultural preserve by reason of that use. However, for purposes of this analysis, it is presumed that the Project would permanently disturb lands zoned for agricultural use. Note that Project components such as underground pipelines would only temporarily affect lands zoned for agricultural use. Table 15-16 shows the area of land zoned for agricultural use that would be permanently disturbed by Alternatives 1, 2, and 3. In addition, Table 15-17 shows the area of land under Williamson Act contract that would be permanently used by Alternatives 1, 2, and 3. Further, Table 15-18 shows the total acreage of remnant parcels of Williamson Act land that would fall under county acreage thresholds under the Project alternatives.

Table 15-16. Land Zoned for Agricultural Use Permanently Disturbed by Project Facilities under Alternatives 1, 2, and 3 (acres)

Project Facilities	Zoning Classification	Alt 1 & Alt 3	Alt 2
Glenn County			
Conveyance to Regulating Reservoirs	AE-40 AP-80 FS-80	<1 <1 <1	<1 <1 <1
Saddle Dams and Saddle Dikes	AP-160	99	58
Roads	AP-80 AP-160	80 122	80 136
Inundation Area	AP-160 FA-160	1,658 225	1,484 179
Sites Reservoir and Related Facilities	AP-80 AP-160	39 10	39 20
Glenn County Total	–	2,233	1,997
Colusa County			
Regulating Reservoirs and Conveyance Complex (Funks Reservoir, Funks PGP, Funks Pipelines, TRR East or West, TRR East or West PGPs, TRR East or West pipelines, Electrical Transmission Connections, Transition Manifold, Buildings)	E-A F-A	144 --	190 --
Main Dams and Saddle Dams	F-A	82	46
Roads	E-A F-A	25 837	12 1,167
Recreation Areas	F-A	785	722
Sites Reservoir and Related	F-A	388	408

Project Facilities	Zoning Classification	Alt 1 & Alt 3	Alt 2
Facilities			
Inundation Area	E-A F-A	5 11,060	5 10,528
Colusa County Total	–	13,327	13,079
Yolo County			
Conveyance to Sacramento River (TC Canal Intake, Dunnigan Pipeline, CBD Outlet, Sacramento Discharge for Alternative 2)	A-N A-X	<1 <1	<1 <1
Yolo County Total	–	1	1
Counties Grand Total	**–**	**15,561**	**15,077**

Source: Glenn County 2020b, Colusa County 2020a, Yolo County 2020b.
Notes:
-- = <0.01 acre or none
AE = Exclusive Agricultural Zone
Alt = alternative
A-N = Agricultural Intensive
AP = Agricultural Preserve Zone
A-X = Agricultural Extensive
CBD = Colusa Basin Drain
E-A = Exclusive Agriculture
FA = Foothill Agricultural/Forestry Zone
F-A = Foothill Agriculture
FS = Farmland Security Zone
PGP = pumping generating plant
TC = Tehama-Colusa
TRR = Terminal Regulating Reservoir
Note: Sum of numbers may not equal total shown due to rounding.

Table 15-17. Land under Williamson Act Contract Permanently Disturbed by Project Facilities under Alternatives 1, 2, and 3 (acres)

Project Facilities	Alternatives 1 and 3	Alternative 2
Glenn County		
Saddle Dams and Saddle Dikes	99	58
Roads	202	216
Sites Reservoir and Related Facilities	49	59
Inundation Area	1,657	1,482
Glenn County Total	2,007	1,816
Colusa County		
Main Dams and Saddle Dams	66	30
Roads	831	1,061
Sites Reservoir and Related Facilities	388	408
Recreation Areas	785	722
Inundation Area	9,790	9,299
Colusa County Total	11,861	11,521
Yolo County		
Conveyance to Sacramento River (TC Canal Intake, Dunnigan Pipeline, CBD Outlet, Sacramento Discharge for Alternative 2)	--	3
Yolo County Total	--	3
Total	**13,868**	**13,340**

Source: Glenn County 2020c, Colusa County 2020b, Yolo County 2020b.
Note:
-- = <0.01 acre or none
CBD = Colusa Basin Drain
TC = Tehama-Colusa
Note: Sum of numbers may not equal total shown due to rounding.

Table 15-18. Acreage of Remnant Parcels of Williamson Act Contracted Land below County Thresholds Permanently Created by Project Facilities under Alternatives 1, 2, and 3 (acres)

Project Facilities	Alternatives 1 and 3		Alternative 2	
	Williamson Act Remnant Parcels Prime	Williamson Act Remnant Parcels Nonprime	Williamson Act Remnant Parcels Prime	Williamson Act Remnant Parcels Nonprime
Glenn County				
Roads	77	--	129	--
Inundation Area	23	--	90	--
Glenn County Total	*100*	--	*219*	--
Colusa County				
Recreation Areas	3	22	3	6
Roads	26	826	33	806
Sites Reservoir and Related Facilities	2	32	5	9
Inundation Area	60	150	91	127
Colusa County Total	*90*	*1,030*	*132*	*948*
Counties Grand Total	**1,220**		**1,299**	

Source: Glenn County 2020c, Colusa County 2020b,

Note:

-- = <0.01 acre or none

Construction and Operations

Zoning. All alternatives would result in permanent use of land zoned for agricultural uses in each of the three counties (Table 15-16). The zoning designations affected by Alternatives 1 and 3 are AE-40, AP-80, AP-160, FA-160, and FS-80 in Glenn County; E-A and F-A in Colusa County; and A-N and A-X in Yolo County. These zoning designations allow for land uses that are compatible with agriculture. Some Project components, such as reservoirs and public facilities, would remove existing agricultural use. Alternatives 1 and 3 would affect more land zoned for agricultural use than Alternative 2. As described in Chapter 14, *Land Use*, under Impact LAND-2, coordination between the Authority and Glenn and Colusa Counties would occur regarding zoning ordinances prior to construction.

Williamson Act Direct Permanent Impacts. All alternatives would result in impacts as a result of permanent direct removal of land from Williamson Act contracts in Glenn and Colusa Counties, and Alternative 2 would result in impacts as a result of permanent direct removal of land from Williamson Act contracts in Yolo County (Table 15-17). As shown in Table 15-17, more acres of land in Glenn and Colusa Counties under Williamson Act contracts would be removed under Alternatives 1 and 3 than under Alternative 2. In Yolo County, Alternatives 1 and 3 would not remove any land from Williamson Act contract while Alternative 2 would remove 3 acres.

Williamson Act Remnant Parcels. All alternatives would also create remnant parcels of land under Williamson Act that would fall under County thresholds (see Table 15-18). Contracts for any remnants that no longer qualify for continuance under contract would potentially be canceled. Such a cancellation would be considered an incompatibility between Alternative 1, 2, or 3 and the Williamson Act program. In Glenn County, Alternative 2 would create more acres of remnant parcels of land currently under Williamson Act contract than Alternatives 1 and 3. In Colusa County, Alternatives 1 and 3 would create slightly more acreage of remnant parcels than Alternative 2. In Yolo County, neither alternative would create any remnant parcels of land currently under Williamson Act contract.

Zoning and Williamson Act Lands and Important Farmland. As identified under Impact AG-1, Important Farmland would be permanently converted to nonagricultural uses. Some of this land is zoned agricultural land and Williamson Act land.

Inundation. As discussed under Impact AG-1, agricultural lands would not be affected during the growing season as a result of inundation at Yolo Bypass or the CBD for Alternative 1, 2, or 3. Therefore, Alternatives 1, 2, and 3 would not result in temporary or permanent impacts as a result of changes in water regime at Yolo Bypass and CBD.

Maintenance: Maintenance activities would result in no impacts on lands zoned for agriculture or in Williamson Act contracts. Maintenance activities would occur at facilities once they are built and would have no ability to impact agricultural lands outside of the permanent facility footprint.

CEQA Significance Determination and Mitigation Measures

Placement of underground pipelines on land zoned for agricultural use or in Williamson Act contracts would not result in a permanent change of land use from agricultural use. No impact would occur under construction and operations.

Placement of aboveground Project facilities on some land zoned for agricultural use would result in a permanent change of land use. As discussed in Chapter 14, *Land Use*, prior to the start of Project construction, coordination between the Authority and Glenn and Colusa Counties would occur regarding zoning ordinances. This land would not create an indirect impact through conflicts with zoning on adjacent parcels zoned for agricultural use because the new uses would be compatible with adjacent agriculture. Therefore, construction and operations impacts would be less than significant.

Placement of aboveground Project facilities on land under Williamson Act contract would result in removal of this land from contract and would also create remnant parcels. As shown in Table 15-17, Alternative 1 or 3 would remove a total of 13,868 acres from Williamson Act contract as a result of direct impact, and Alternative 2 would remove a total of 13,340 acres. This acreage of direct impact for Alternative 1 or 3 accounts for 1.3% of the land under Williamson Act contract in the study area. This acreage of direct impact for Alternative 2 accounts for 1.25% of the land under Williamson Act contract in the study area. In addition, placement of aboveground Project facilities could result in creation of remnant parcels of land under Williamson Act that are smaller than County requirements for such contracts, resulting in contract nonrenewal or cancellation for affected parcels. As shown in Table 15-18, Alternative 1 or 3 would create a total of 1,220 acres of remnant parcels of land currently under Williamson Act contract, and Alternative 2 would create a total of 1,299 acres of remnant parcels of land currently under Williamson Act contract. Alternative 2 would affect more acres than Alternative 1. Finally, some of this land is also Important Farmland as identified under Impact AG-1. Construction and operation of Alternative 1, 2, or 3 would both remove land from Williamson Act contract and create remnant parcels too small to remain under contract. Impacts would be significant.

As discussed under Impact AG-1, Alternatives 1, 2, and 3 are meant to increase water reliability to Storage Partners, including Reclamation, as evidenced by CEQA Objective-1 (OBJ-1) and Objective 3 (OBJ-3). Increased water supply reliability would allow some lands currently in Williamson Act contracts to remain in production during times it may have otherwise been fallowed or taken out of production for longer periods because of lack of water. However, this effect cannot be quantified, nor would it fully reduce permanent impacts on lands experiencing Williamson Act cancellation because the water could not be used on lands anticipated to experience Williamson Act cancellations.

Implementation of Mitigation Measure AG-2.1 would minimize impacts relating to Williamson Act contract nonrenewal or cancellation by requiring the Authority to comply with Government Code Section 51290–51293, including notifying the DOC of proposed acquisition and completed acquisition. Furthermore, implementation of Mitigation Measure AG-1.1 would minimize impacts on lands that are both Williamson Act and Important Farmland by requiring the Authority to fund acquisition of agricultural conservation easements in the same agricultural region in which the impacts occur or donate mitigation fees, as discussed under Impact AG-1.

With implementation of Mitigation Measure AG-2.1, the permanent removal of these lands from contracts, both directly and indirectly through contract cancellation, would occur over thousands of acres. In addition, as discussed under Impact AG-1, impacts would remain significant and unavoidable with implementation of Mitigation Measure AG-1.1. Therefore, impacts would remain significant and unavoidable under Alternative 1, 2, or 3 after the implementation of Mitigation Measures AG-2.1 and AG-1.1. There are no other feasible mitigation measures to address this impact for a project of this nature and magnitude because the lands are needed for the Project to be constructed and to operate.

Mitigation Measure AG-2.1: Minimize Impacts on Williamson Act–Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators

To reduce impacts on lands under Williamson Act contract, the Authority will implement the measures below.

- The Authority will comply with Government Code Sections 51290–51293 with respect to acquiring lands under Williamson Act contract.
    - Sections 51290(a)–51290(b) state that State policy, consistent with the purpose of the Williamson Act to preserve and protect agricultural land, is to avoid locating public improvements and any public utilities improvements in agricultural preserves, whenever practicable. If such improvements must be located within a preserve, they will be located on land that is not under contract.
    - Whenever it appears that land within a preserve or under contract may be required for a public improvement, DOC and the local jurisdiction responsible for administering the preserve must be notified (Section 51291(b)).
    - Within 30 days of being notified, DOC and the local jurisdiction will forward comments to the Authority, which the Authority must consider (Section 51291(b)).
    - A public improvement may not be located within an agricultural preserve unless findings are made that (1) the location is not based primarily on the lower cost of acquiring land in an agricultural preserve and (2) for agricultural land covered under a contract for any public improvement, no other land exists within or outside the preserve where it is reasonably feasible to locate the public improvement (Sections 51921(a) and 51921(b)).
    - The contract will be terminated when land is acquired by eminent domain or in lieu of eminent domain (Section 51295).
    - The Authority will notify DOC within 10 working days upon completion of the acquisition (Section 51291(c)).
    - The Authority will notify DOC and the local jurisdiction before completion of any proposed substantial changes to the public improvement (Section 51291(d)).
    - If, after acquisition, the Authority determines that the property will not be used for the proposed public improvement, DOC and the local jurisdiction

administering the involved preserve will be notified before the land is returned to private ownership. The land would be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (Section 51295).

- The Authority will coordinate with landowners and agricultural operators to sustain existing agricultural operations, at the landowners' discretion, within the study area until the individual agricultural parcels are needed for Project construction.

NEPA Conclusion

Effects would be the same as described above for CEQA with respect to zoning and Williamson Act lands for Alternatives 1, 2, and 3. Project facilities for Alternatives 1, 2, and 3 permanently located on agricultural lands would not conflict with zoning on adjacent parcels zoned for agricultural use as compared to the No Project Alternative because the new uses would be compatible with adjacent agriculture. Effects would not be adverse with respect to zoning.

Placement of aboveground Project facilities on land under Williamson Act contract would result in removal of this land from contract and would create remnant parcels as compared to the No Project Alternative. Table 15-17 summarizes the actual acres removed from Williamson Act contracts under Alternative 1, 2, or 3. The acres removed by Alternative 1 or 3 represent 1.3% of the land under Williamson Act contract as compared to the No Project Alternative and the acres removed by Alternative 2 represent 1.25% of the land under Williamson Act contract as compared to the No Project Alternative. Increased water supply reliability under Alternative 1, 2, or 3 as compared to the No Project Alternative would allow some lands currently in Williamson Act contracts to remain in production during certain times because of lack of water; however, this effect cannot be quantified, nor would it fully reduce permanent effects on lands experiencing Williamson Act cancellation. Implementation of Mitigation Measure AG-2.1 would minimize effects relating to Williamson Act contract nonrenewal or cancellation by requiring the Authority to comply with Government Code Section 51290–51293. Implementation of Mitigation Measure AG-1.1 would minimize effects on lands that are both Williamson Act and Important Farmland by requiring the Authority to fund acquisition of agricultural conservation easements in the same agricultural region in which the effects occur or donate mitigation fees, as discussed under Impact AG-1. Effects would be substantially adverse with respect to Williamson Act lands, even with the incorporation of Mitigation Measures AG-2.1 and AG-1.1.

Impact AG-3: Conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the federal Farmland Protection Policy Act, to nonagricultural use

In many ways, Important Farmland as designated under the FPPA is similar to Important Farmland designated by the FMMP. Both use soil characteristics as the fundamental characteristic to determine the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and other farmland types. The two systems do differ from each other, and one of the primary differences is that the FMMP Important Farmland maps utilize a combination of factors: the quality of soils for agricultural production, availability of irrigation, and the land's use for agricultural, urban, or other purposes. The land uses are updated on a biennial basis based upon a review of aerial imagery, public review, and field reconnaissance. As an example, under

the FMMP system, Prime Farmland is the farmland with the best combination of physical and chemical features able to sustain long-term agricultural production and has the soil quality, growing season, and moisture supply needed to produce sustained high yields. It also must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

In contrast, under the FPPA, 7 U.S.C. Section 657.5 defines the farmlands categories based on soil types. The identification of important farmlands is determined from currently published or interim soil survey maps and data produced and certified by the NRCS National Cooperative Soil Survey Program. The NRCS publishes the specific criteria for each category, which specifies soil pH, water capacity, water table, permeability, temperature regime, erodibility, rooting depth, and particle size (Natural Resources Conservation Service 2010). One result of the difference between FPPA and FMMP designations is that the FPPA system identifies some land used for grazing as Important Farmland, whereas the FMMP designation does not include grazing land as Important Farmland and none of the land currently used for grazing is identified as FMMP Important Farmland.

FPPA Important Farmland overlaps in many areas with FMMP Important Farmland. Because that acreage has already been considered under Impact AG-1, this analysis focuses on FPPA Important Farmland that lies outside FMMP Important Farmland.

No Project

The No Project Alternative would not construct or operate any new Project facilities. Approximately 765,018 acres of Prime Farmland, 192,602 acres of Farmland of Statewide Importance, and no Unique Farmland as designated under FPPA occur in the study area. Under the No Project Alternative, planned and committed projects would be constructed, all of which could result in conversion of Important Farmland as designated under FPPA.

Because the No Project Alternative would not construct or operate new Project facilities, there would be no conversion of Important Farmland as designated under FPPA to nonagricultural uses as a result of placement of below-ground or aboveground Project facilities on Important Farmland.

Significance Determination

The No Project Alternative would not result in placement of below-ground or aboveground Project facilities on Important Farmland as designated under FPPA and therefore would not result in conversion to nonagricultural uses. There would be no effect.

Alternatives 1, 2, and 3

Table 15-19 shows the area that would be both temporarily and permanently disturbed by county and Project component for all alternatives and summarizes the totals.

Table 15-19. Important Farmland as Designated under FPPA outside FMMP Important Farmland Temporarily Affected and Permanently Used by Project Facilities under Alternatives 1, 2, and 3 (acres)

Project Facilities	Important Farmland Classification	Alternatives 1 and 3 Temporary Disturbance	Alternatives 1 and 3 Permanent Conversion	Alternative 2 Temporary Disturbance	Alternative 2 Permanent Conversion
Glenn County					
Inundation Area	Prime If Irrigated Statewide	--	642 453	--	627 442
Saddle Dams and Saddle Dikes	Prime If Irrigated Statewide	6 1	25 5	5 1	18 5
Roads	Prime If Irrigated Statewide	39 31	76 24	37 30	76 24
Sacramento River Diversion and Conveyance to Regulating Reservoirs	Prime If Irrigated Statewide	1 1	--	1 1	--
Sites Reservoir and Related Facilities	Prime If Irrigated Statewide	--	1 --	--	5 --
Glenn County Total	–	80	1,226	75	1,197
Colusa County					
Regulating Reservoirs and Conveyance Complex	Prime If Irrigated Prime If Irrigated and Drained Statewide	85 3 165	1 6	58 3 155	26 169
Inundation Area	Prime If Irrigated Prime If Irrigated and Drained Statewide	--	3,711 177 1,513	--	3,687 177 1,470
Roads	Prime If Irrigated Statewide	4 3	64 115	4 3	186 176
Sites Reservoir and Related Facilities	Statewide	9	--	9	--
Colusa County Total	–	269	5,587	232	5,890

Project Facilities	Important Farmland Classification	Alternatives 1 and 3 Temporary Disturbance	Alternatives 1 and 3 Permanent Conversion	Alternative 2 Temporary Disturbance	Alternative 2 Permanent Conversion
Yolo County					
Conveyance to Sacramento River	Prime If Irrigated Prime If Irrigated and Drained Statewide	11 -- 4	--	11 -- 4	1 --
Yolo County Total	–	14	--	15	1
Counties Grand Total	–	**363**	**6,813**	**322**	**7,088**

Source: California Department of Conservation 2016c, 2018b.
Note:
-- = <0.01 acre or none
Note: Sum of numbers may not equal total shown due to rounding.

Construction

Construction activities, including staging, vegetation removal, excavation, and grading, would result in temporary use of Important Farmland as designated under FPPA as described above in Impact AG-1. As shown in Table 15-19, more acres of Important Farmland would be temporarily used under Alternatives 1 and 3 than Alternative 2. To address disturbance as a result of construction, as described in Impact AG-1, all alternatives include requirements to prepare a topsoil storage and handling plan (BMP-10), develop and implement a plan for preventing and containing spills of hazardous materials (BMP-13), and control invasive plant species during construction (BMP-36). Agricultural productivity and associated soil properties of FPPA designated lands would not be reduced as a result of construction.

Operations

Permanent conversion of Important Farmland as designated under FPPA to nonagricultural use would occur where aboveground facilities associated with Alternatives 1, 2, and 3 would be located on FPPA Important Farmland. As shown in Table 15-19, Alternative 2 would result in permanent conversion of more acres of FPPA Important Farmland than Alternatives 1 and 3. Most of the FPPA Important Farmland outside FMMP Important Farmland affected by the alternatives lies outside irrigated cropland. Most of these impacted FPPA Important Farmland acres exist in lands primarily used for grazing and are currently not irrigated. FPPA does not identify land used for grazing, although FMMP does (discussed in Section 15.2, *Environmental Setting*). In the study area overall there has been an increase in grazing lands over the past years with a total of approximately 459,329 acres of land identified as grazing land (Tables 15-2, 15-6, and 15-10). Thus, grazing lands are in sufficient supply in the study area, as well as across California.

NEPA Conclusion

Ground disturbance on FPPA Important Farmland as a result of construction-related activities associated with Alternative 1, 2, or 3 includes staging, vegetation removal, excavation, and grading. A total of 363 acres of Important Farmland would be temporarily disturbed under Alternative 1 or 3 and 322 acres under Alternative 2 as compared to the No Project Alternative. Implementing requirements to prepare a topsoil storage and handling plan (BMP-10), develop and implement a plan for preventing and containing spills of hazardous materials (BMP-13), and control invasive plant species during construction (BMP-36) would result in restoration of Important Farmland disturbed during construction to preconstruction conditions. Accordingly, the temporary use of Important Farmland during construction would not result in adverse effects.

As discussed above, some of the FPPA Important Farmland that the alternatives would affect lies within FMMP Important Farmland. Conversion of these acres of FPPA Important Farmland is discussed separately under Impact AG-1. Mitigation Measure AG-1.1 is proposed under Impact AG-1 for CEQA purposes that would reduce effects to these lands and is applicable to NEPA; however, effects for FPPA Important Farmland that overlaps with FMMP Important Farmland would continue to be substantially adverse.

As discussed above, the FPPA Important Farmland outside FMPP Important Farmland is predominantly not currently used for irrigated cropland; the only FPPA Important Farmland

mapped within cropland areas is confined to roads. Most of the FPPA Important Farmland outside FMMP Important Farmland in the study area is in current use for grazing. There is an ample supply of grazing land in California, and conversion of grazing land to nongrazing uses is not considered to be a substantial adverse effect on agricultural resources under NEPA, beyond the substantial adverse effect discussed above.

Impact AG-4: Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the FMMP of the California Resources Agency or under the federal Farmland Protection Policy Act, to nonagricultural use.

No Project

The No Project Alternative would not construct or operate any new Project facilities. A substantial portion of the Yolo Bypass and areas adjacent to the CBD and Sutter Bypass are agricultural land, as mapped by the California Department of Water Resources (California Department of Water Resources 2013). Because under the No Project Alternative there would be no change in water deliveries from a new Sites Reservoir, there would be no change in seasonal inundation and draining regimens in the Yolo Bypass and adjacent to the CBD and Sutter Bypass. Water temperatures and concentrations of methylmercury and arsenic would not change. Because conditions for inundation and draining, water temperatures, and concentrations of methylmercury and arsenic would not change, the No Project Alternative would not cause conversion of agricultural land to nonagricultural purposes.

Significance Determination

The No Project Alternative would not change inundation and drainage patterns in the Yolo Bypass or adjacent to the CBD and Sutter Bypass and therefore would not result in conversion of agricultural land to nonagricultural uses. In addition, the No Project Alternative would not change water temperatures or concentrations of methylmercury or arsenic and therefore would not result in conversion of agricultural land to nonagricultural uses. There would be no impact/no effect.

Alternatives 1, 2, and 3

Reservoir releases from the new Sites Reservoir would be used for agricultural water supply and would be released into canals (i.e., TC Canal and GCID Main Canal directly) for this purpose. In addition, reservoir releases would be released into the Yolo Bypass as described in Chapter 2, *Project Description and Alternatives*. The temperature and quality of the release water represents potential changes in the existing environment, have potential to affect land in agricultural production. Changes to inundation and drainage patterns, water temperature, and concentrations of methylmercury and arsenic would only have the potential to occur during operations and construction would not result in changes. Therefore, this discussion considers only operations impacts.

Inundation and Drainage

Changes in agricultural land would not occur as a result of inundation at the CBD or the Sutter Bypass during the growing and harvesting season. Based on modeling performed using a criterion of a 25.3-foot water surface elevation at River Mile 8.9, reservoir releases to the CBD would be limited and would not inundate existing agricultural fields adjacent to the CBD. Therefore, Alternatives 1, 2, and 3 would not result in inundation of agricultural fields within the CBD, and no conversion of Important Farmland to nonagricultural uses in the CBD area is anticipated as a result of operations. Further, modeling indicates that there would be fewer weir spill events into the Sutter Bypass under Alternatives 1, 2, and 3 than under the No Project Alternative, especially for spills lasting more than 45 days (Appendix 11M, *Inundated Floodplain and Side-Channel Habitat Analysis, including Yolo and Sutter Bypasses*). Therefore, Alternatives 1, 2, and 3 would not result in inundation of agricultural fields within the Sutter Bypass, and no conversion of Important Farmland to nonagricultural uses in the Sutter Bypass area is anticipated as a result of operations. Accordingly, inundation at the CBD and Sutter Bypass is not studied further.

In addition, changes in agricultural land would not occur as a result of inundation in the Yolo Bypass during the growing and harvesting season. Based on observations during North Delta Flow Actions (Davis pers. comm.), the comparable August–October habitat flows from Sites Reservoir through the Yolo Bypass may cause limited inundation of low-elevation parcels in the upper Yolo Bypass (north of the Interstate (I-) 80 Causeway). The intent of the releases from Sites Reservoir to the Yolo Bypass during this time period is to temporally and spatially distribute food sources for fish species. If the water inundates floodplain areas (i.e., areas outside existing channels), the food resources would be deposited and would fail to move into the Delta. As such, Sites Reservoir would be operated to maintain flows within the existing Toe Drain, Tule Canal, and other channels, and adjustments in operations would be coordinated between the Authority and parcel owners using the existing Yolo Bypass monitoring network. Therefore, Alternatives 1, 2, and 3 would not result in inundation of agricultural fields within the Yolo Bypass during the growing and harvesting season, and no conversion of Important Farmland to nonagricultural uses in the Yolo Bypass area is anticipated as a result of operations.

Changes in Concentrations of Methylmercury and Arsenic

The process of filling Sites Reservoir with relatively low concentrations of arsenic from upstream along the Sacramento River followed by evapoconcentration would lead to small changes in arsenic concentrations. On average,[6] estimated arsenic concentration in the Sites Reservoir releases (1.84 µg/L) is slightly lower than the average measured concentration in the Sacramento River receiving water (1.98 µg/L) and slightly higher than the average measured concentration in the Sacramento River at Hamilton City (1.71 µg/L). These values are substantially less than regulatory standards for agriculture (100 µg/L, but toxicity to rice may occur at less than 50 µg/L). Therefore, Alternatives 1, 2, and 3 would not result in increased arsenic levels that would be toxic for agricultural purposes, including rice, and no conversion of Important Farmland to nonagricultural uses as a result of changes in arsenic levels is anticipated.

[6] It is appropriate to use average values to report arsenic concentrations because arsenic effects would occur over time.

Mercury in soil and water can be changed to methylmercury in anoxic environments (Tanner et al. 2017). Methylmercury bonds easily to proteins, leading readily to bioaccumulation. Environmental levels of methylmercury as low as 0.1 nanogram per liter (ng/l) can contribute to bioaccumulation. The primary ways in which mercury and methylmercury concentrations could become elevated in the Yolo Bypass due to the Project are (1) changes in the timing and magnitude of flows through the Yolo Bypass, and (2) concentrations of mercury and methylmercury in the Sacramento River when it enters Yolo Bypass that would be available for methylation and/or bioaccumulation. Releases from the Sites Reservoir to the Yolo Bypass habitat are discussed above and would primarily be contained within the Yolo Bypass Channels (e.g., Tule Canal and the Toe Drain). Yolo Bypass receives flows of over 30,000 cubic feet per second (cfs) from multiple sources during flood flows, primarily during high-flow events during winter months, and diversions to Sites Reservoir during this time would slightly reduce Yolo Bypass flows. A reduction in inundation would lower the potential for methylmercury formation in the Yolo Bypass because it would reduce the amount of soil and sediment available for mercury methylation. Therefore, releases from Sites Reservoir to Yolo Bypass under Alternatives 1, 2, and 3 would be negligible in comparison and would not result in substantial changes in water levels that affect wetting and drying of soils in Yolo Bypass. As such, measurable increases in methylmercury are not expected.

Water Temperature

Rice is a substantial crop in the study area. Rice depends on consistent irrigation, generally flooding throughout its growing season, at the end of which the rice fields are drained to allow for harvest (USA Rice 2020). The rice-growing cycle begins in early May in California with planting (Sharifi et al. 2018, California Rice Commission 2021). From May until the end of the growing season approximately 4 to 5 months later (September to October), the plants mature, at which point fields are drained and harvest begins. After harvest, fields are flooded again to provide for straw decomposition and animal habitat. As discussed above, the timing of inundation and drainage is not expected to change substantially.

In addition to timing of the inundation and drainage periods, water temperature plays a major role in rice productivity (Sharifi et al. 2018). The optimal water temperature for rice growth is 65°F (Linquist pers. comm.). When water temperatures are too low during the early season, development of rice grains is retarded (Sharifi et al. 2018, John pers. comm.). Accordingly, rice farming could be affected if water temperatures are too cold, and if water temperatures were too cold year after year, it is possible that farmers would choose not to continue to plant rice. Accordingly, if FMMP or FPPA Important Farmland ceased to be used for agriculture as a result of Sites Reservoir releases, it could potentially be converted to nonagricultural uses.

As stated above, rice productivity decreases when water temperatures are below 65°F, and blanking (failure to produce rice grains) occurs when water gets below approximately 58°F or 59°F (Linquist pers. comm., Johnson pers. comm.). This effect is strongest during the early months of the growing cycle (Sharifi et al. 2018). Table 15-20 shows the modeled average release temperature for Sites Reservoir releases for the alternatives, and Table 15-21 shows the modeled minimum release temperature.

Table 15-20. Modeled Average Release Water Temperatures by Alternative (°F)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1A [a]	44.7	46.2	49.1	56.4	62.2	64.8	65.4	65.4	64.9	61.3	54.3	48.5
1B [a]	43.8	45.9	48.9	56.2	62.1	64.7	65.2	65.1	64.6	60.6	53.4	47.8
2 [a]	43.2	46.2	49.0	56.6	62.2	64.5	65.2	65.1	64.4	60.3	53.1	47.5
3 [a]	43.8	46.0	48.8	55.8	61.5	64.5	65.1	64.7	64.3	60.7	53.6	47.8
No Project Alternative [b]	46.4	47.8	51.7	57.5	61.0	62.9	62.3	62.4	61.3	57.0	52.9	48.3

Notes:

[a] Temperatures are modeled for I/O tower release.

[b] Temperatures are modeled for Sacramento River at Hamilton City.

Table 15-21. Modeled 90% Exceedance (Tenth Percentile) for Release Water Temperatures by Alternative (°F)

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1A [a]	41.0	43.7	47.8	53.8	59.6	63.4	64.8	64.8	63.7	57.4	50.3	45.1
1B [a]	40.6	42.4	47.5	53.6	59.6	62.9	64.7	64.3	63.1	56.4	50.7	45.0
2 [a]	40.6	42.4	47.6	53.9	59.3	63.0	64.5	64.2	62.1	56.0	50.2	44.5
3 [a]	40.7	42.5	47.5	52.8	58.3	62.6	64.5	64.2	62.8	56.7	51.0	45.3
No Project Alternative [b]	45.3	46.2	49.2	54.4	58.4	60.6	59.9	60.5	57.7	55.2	51.6	47.0

Notes:

[a] Temperatures are modeled for I/O tower release.

[b] Temperatures are modeled for Sacramento River at Hamilton City.

As Table 15-20 indicates, average release water temperatures at the I/O tower would not fall below the No Project Alternative temperature in Hamilton City at Sacramento River for growing season months (May through August) for Alternatives 1, 2, and 3. Similarly, Table 15-21 indicates that in the case of 90% exceedance (i.e., 10% of modeled years), temperatures would not fall below the No Project Alternative temperature for growing season months for Alternatives 1, 2, and 3. Therefore, it is unlikely that Sites Reservoir releases under Alternative 1, 2, or 3 would affect rice production. Accordingly, it is unlikely that Alternative 1, 2, or 3 would cause conversion of Important Farmland (either FMMP or FPPA) to nonagricultural uses.

CEQA Significance Determination and Mitigation Measures

Releases from Sites Reservoir would not change patterns of inundation and drainage in Yolo Bypass or adjacent to the CBD or Sutter Bypass. Therefore, there would be no conversion of agricultural land to nonagricultural uses, and no impact would occur.

Releases from Sites Reservoir would not substantially change concentrations of methylmercury or arsenic. Therefore, there would be no conversion of agricultural land to nonagricultural uses, and no impact would occur.

Releases from Sites Reservoir would have a small change on water temperatures; however, the average surface water temperature would not fall below current surface water temperatures in both the average and 90% exceedance scenarios. Therefore, water temperature would not result in conversion of FMMP or FPPA Important Farmland to nonagricultural use, and no impact would occur.

NEPA Conclusion

Operations effects would be the same as described above for CEQA. Under the operation of Alternative 1, 2, or 3, there would be no conversion of agricultural land to nonagricultural uses as a result of releases to the CBD or Sutter Bypass, changes in concentrations of methylmercury or arsenic, or changes in water temperature as compared to the No Project Alternative. Operation of Alternative 1, 2, or 3 would have no effect with respect to Important Farmland.

15.5 References

15.5.1. Printed References

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15.5.2. Personal Communications

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Johnson, Tim. President and CEO of California Rice Commission. Meeting on June 8, 2021, including Diana Roberts, Senior Environmental Planner, ICF.

Kisko, Michael. Environmental Scientist. California Department of Conservation, Farmland Mapping and Monitoring Program, Sacramento, CA. October 2, 2020—Email to Diana Roberts, Senior Environmental Planner, ICF, San Jose, CA.

Linquist, Bruce. University of California Extension Service. Meeting on June 8, 2021, including Diana Roberts, Senior Environmental Planner, ICF.