

# 11 Land Use and Agricultural Resources

This chapter describes the existing land use conditions and the regulatory setting associated with land use and agricultural resources in the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Project) area and environmental consequences as they pertain to the implementation of the Project alternatives.

## 11.1 Environmental Setting/Affected Environment

The area of analysis for land use and agricultural resources includes areas where construction and operations would take place and could result in land use or agricultural resource effects. Construction activities would take place in the Fremont Weir Wildlife Area (FWWA), Tule Pond, Tule Canal, and fields within the Yolo Bypass, all located within Yolo and Sutter counties. The Yolo Bypass is predominantly located in Yolo County, with small areas of the bypass in Sutter and Solano counties.

The area of analysis for land use and agricultural resources is Yolo, Sutter, and Solano counties, with discussions specific to the Yolo Bypass. The Yolo Bypass is discussed first and followed by a regional-level discussion of the three counties. The regional-level discussion provides information on land use in the areas, including and surrounding the Yolo Bypass.

Lands within the Yolo Bypass are designated Agriculture and Public and Open Space by Sutter County and Agriculture by Yolo County (County of Yolo 2009; Sutter County 2011). The area of analysis has no established communities.

Figure 11-1 shows the land use and agricultural resources study area. Figure 11-2 the land use designations, primarily by crop, within the area of analysis. Table 11-1 shows different agricultural land designations in comparison with other land and water areas within the Yolo Bypass. The majority of the Yolo Bypass is designated as Unique Farmland. Unique Farmland refers to lands, other than Prime Farmland, that are used for producing specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables, and is often located in special microclimates. Prime Farmland is land that has the best combination of physical and chemical properties desired to produce food, feed, forage, fiber, and oilseed crops. Farmlands of Statewide or Local Importance are generally lands, determined by the county board of supervisors and a local advisory committee, that nearly meet the requirements for Prime or Unique Farmlands that are used to produce food, feed, fiber, forage, and oilseed crop. Farmland of Local Potential refers to lands that have soils suitable for Prime or Farmland of Statewide Importance designations but are not irrigated or cultivated. Figure 11-3 presents the land use categories, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, within the Yolo Bypass.

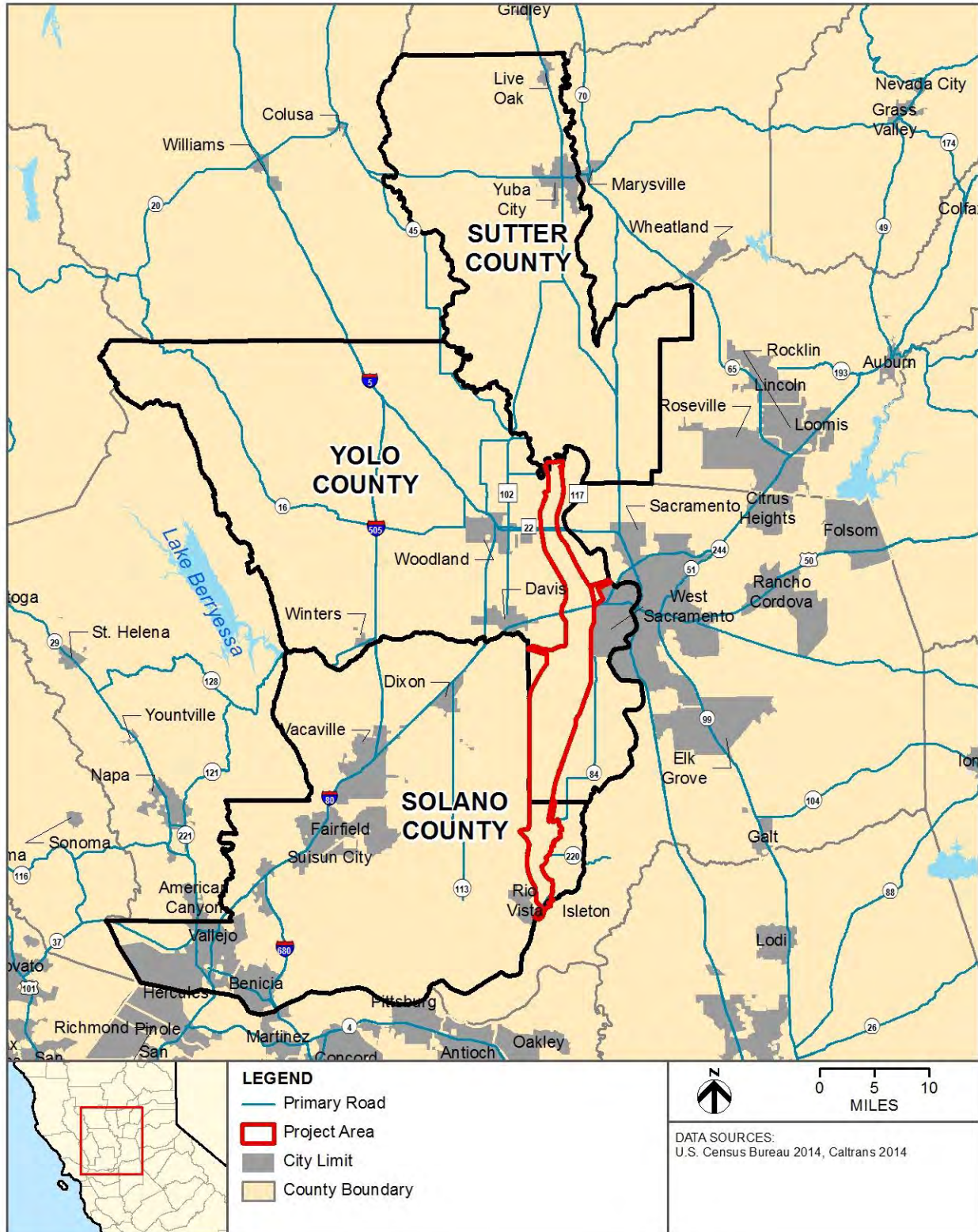


Figure 11-1. Area of Analysis for Land Use and Agricultural Resources

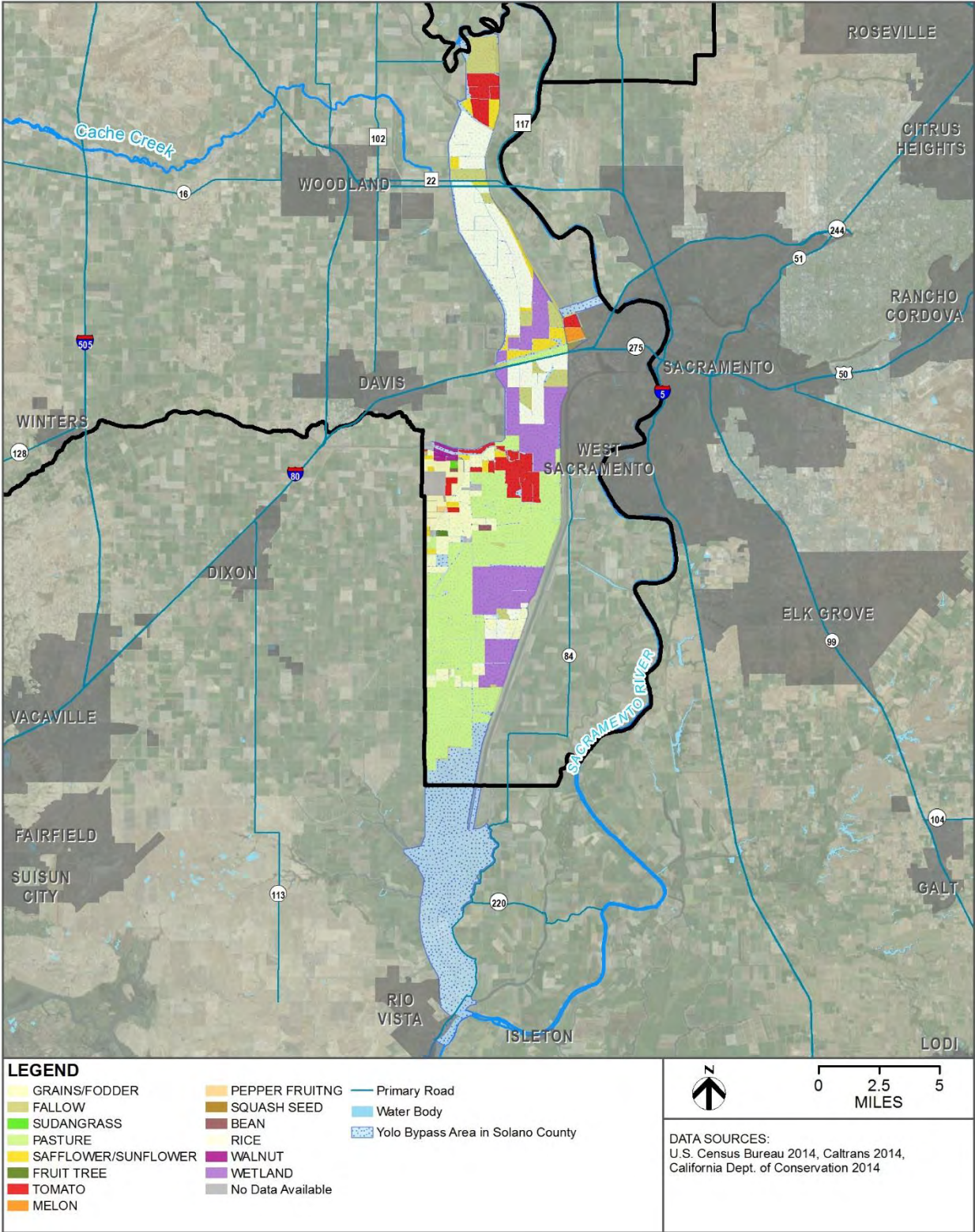


Figure 11-2. Yolo Bypass Land Use by Crop

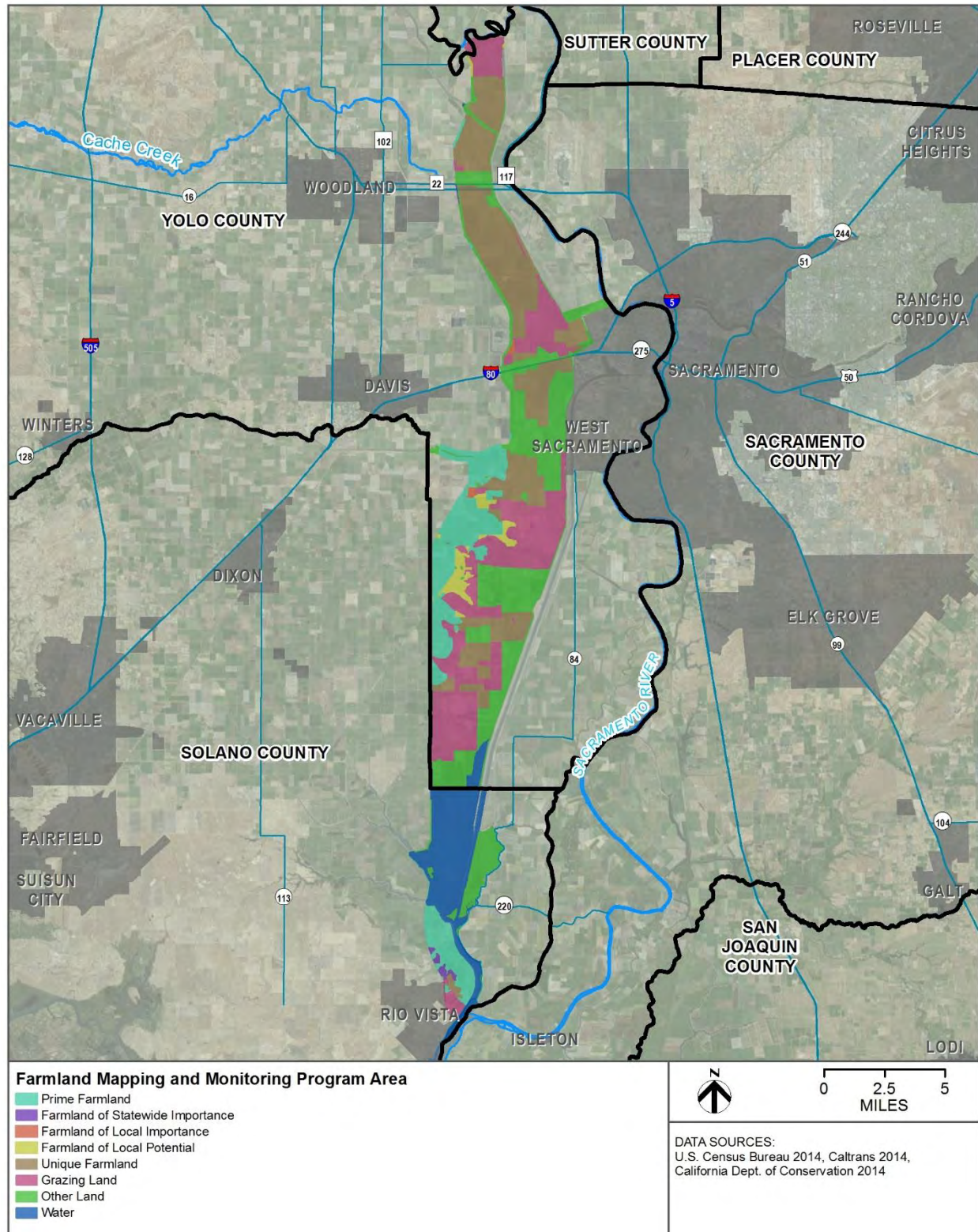


Figure 11-3. Farmland Designations in the Yolo Bypass

**Table 11-1. Summary of Land Use Designations in the Yolo Bypass**

<b>Land Use Category</b>	<b>Acres</b>
Prime Farmland	6,108
Farmland of Statewide Importance	2
Unique Farmland	18,429
Farmland of Local Importance	169
<b>Important Farmland Subtotal</b>	<b>24,708</b>
Grazing Land	17,389
Farmland of Local Potential	1,301
<b>Agricultural Land Subtotal</b>	<b>43,398</b>
Other Land	13,686
Water Area	584

Source: Farmland Mapping and Monitoring Program (FMMP) 2014

Some lands within the project area are considered “agricultural preserves” and sometimes restricted to agricultural or open space designations for 10 to 20 years under the Williamson Act or Farmland Security Zone (FSZ) program. The Williamson Act and FSZ program are described in Section 11.2.2.1. Table 11-2 summarizes farm acreage enrolled in the Williamson Act and FSZ programs and the agricultural conservation easements in Yolo, Sutter, and Solano counties in 2012 and 2013.

**Table 11-2. Williamson Act and Agricultural Conservation Easement Acreage in Yolo, Sutter, and Solano Counties (2012 to 2013)**

County	2012 Williamson Act Prime (acres)	2012 Williamson Act Non-Prime (acres)	2012 Total (Williamson Act lands; acres)	2013 Williamson Act Prime (acres)	2013 Williamson Act Non-Prime (acres)	2013 Total (Williamson Act lands; acres)	Percent Change (Total Williamson Act lands; 2012-2013)	FSZ (2013 acres) Urban Prime	FSZ (2013 acres) Non-Prime	FSZ (2013 acres) Non-Urban Non-Prime	FSZ (2013 acres) Non-Urban Non-Prime	Agricultural Conservation Easement (through the CFCP; 2013 acres) Prime	Agricultural Conservation Easement (through the CFCP; 2013 acres) Non-Prime	2013 Total Conservation lands (acres)
Yolo	--	--	--	170,102	142,587	<b>312,689</b>	<b>+100</b>	158	--	--	--	117	20	<b>312,984</b>
Sutter	51,408	13,165	<b>64,573</b>	51,376	13,165	<b>64,541</b>	<b>-0.05</b>	--	--	--	--	--	--	<b>64,541</b>
Solano	119,799	145,335	<b>269,997</b>	119,361	145,221	<b>272,504</b>	<b>+0.93</b>	--	--	--	--	1,938	5,984	<b>272,504</b>

Source: California Department of Conservation (DOC) 2015c  
 Key: CFCP = California Farmland Conservancy Program; FSZ = Farmland Security Zone

### 11.1.1 Yolo County

The majority of the Yolo Bypass, roughly 82 percent (57,689 acres), is within Yolo County on lands designated as Agriculture. Between 124 and 406 acres of Yolo County would be affected by the construction and implementation of the Project. Yolo County encompasses 1,021 square miles (approximately 653,500 acres), which includes unincorporated areas and incorporated areas (the cities of Davis, West Sacramento, Winters, and Woodland). The Yolo Bypass is located within the unincorporated areas of Yolo County. The majority of the county is designated as Agriculture, most of which is in unincorporated areas (County of Yolo 2009). Open Space designations in Yolo County makes up 7.8 percent of the land, with the majority located in incorporated areas (County of Yolo 2009). Table 11-3 summarizes land use designations in Yolo County.

**Table 11-3. Summary and Change by Land Use Category for Yolo County (2012 to 2014)**

Land Use Category	Total Acreage Inventoried		2012 to 2014 Acreage Changes			
	2012	2014	Acres Lost (-)	Acres Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	250,693	250,345	1,051 (0.4%)	703 (0.3%)	1,754 (0.7%)	-348 (-0.1%)
Farmland of Statewide Importance	17,298	18,861	108 (0.6%)	1,671 (9.7%)	1,779 (10.3%)	1,563 (9.0%)
Unique Farmland	42,403	44,604	219 (0.5%)	2,420 (5.7%)	2,639 (6.2%)	2,201 (5.2%)
Farmland of Local Importance	58,137	51,725	7,537 (13.0%)	1,125 (1.9%)	8,662 (14.9%)	-6,412 (-11.0%)
<b>Important Farmland Subtotal</b>	<b>368,531</b>	<b>365,535</b>	<b>8,915 (2.4%)</b>	<b>5,919 (1.6%)</b>	<b>14,834 (4.0%)</b>	<b>-2,996 (0.8%)</b>
Grazing Land	163,640	166,367	1,753 (1.1%)	4,480 (2.7%)	6,233 (3.8%)	2,727 (1.7%)
<b>Agricultural Land Subtotal</b>	<b>532,171</b>	<b>531,902</b>	<b>10,668 2.0%</b>	<b>10,399 2.0%</b>	<b>21,067 (4.0%)</b>	<b>-269 (-0.1%)</b>
Urban and Built-up Land	30,835	31,049	7 (0.0%)	221 (0.7%)	228 (0.7%)	214 0.7%
Other Land	82,639	82,694	188 (0.2%)	243 (0.3%)	431 (0.5%)	55 (0.1%)
Water Area	7,804	7,804	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Total Area Inventoried</b>	<b>653,449</b>	<b>653,449</b>	<b>10,863 (1.7%)</b>	<b>10,863 (1.7%)</b>	<b>21,726 (3.3%)</b>	<b>0 (0.0%)</b>

Source: California Department of Conservation (DOC) 2015a

Notes:

<sup>1</sup> Based on 2012 to 2014 land use conversion data.

### 11.1.2 Sutter County

A small portion of the Yolo Bypass (approximately 98 acres, 0.14 percent) is within Sutter County. Between 4 and 45 acres, dependent on the alternative, of Open Space lands in Sutter County would be affected by the construction and implementation of the Project. Sutter County encompasses approximately 607 square miles (approximately 388,500 acres), with the majority located in unincorporated areas. Land in Sutter County is separated into specific land use designations that aid in guiding the type of development that takes place within the county. Most land within the county is designated as Agricultural (Sutter County 2011). Table 11-4 summarizes the land use acreages in the county.

Components of project alternatives would be located on lands designated as Open Space (Other Land).

**Table 11-4. Summary and Change by Land Use Category for Sutter County (2012 to 2014)**

Land Use Category	Total Acreage Inventoried		2012 to 2014 Acreage Changes			
	2012	2014	Acres Lost (-)	Acres Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	161,500	161,019	1,077 (0.7%)	596 (0.4%)	1,673 (1.0%)	-481 (-0.3%)
Farmland of Statewide Importance	104,576	104,003	1,160 (1.1%)	587 (0.6%)	1,747 (1.7%)	-573 (-0.5%)
Unique Farmland	16,036	16,087	296 (1.8%)	347 (2.2%)	643 (4.0%)	51 (0.3%)
Farmland of Local Importance	0	0	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Important Farmland Subtotal</b>	282,112	281,109	2,533 (0.9%)	1,530 (0.5%)	4,063 (1.4%)	-1,003 (-0.4%)
Grazing Land	53,232	54,327	1,151 (2.2%)	2,246 (4.2%)	3,397 (6.4%)	1,095 (2.1%)
<b>Agricultural Land Subtotal</b>	335,344	335,436	3,684 (1.1%)	3,776 (1.1%)	7,460 (2.2%)	92 (0.0%)
Urban and Built-up Land	13,611	13,607	240 (1.8%)	236 (1.7%)	476 (3.5%)	-4 (0.0%)
Other Land	38,474	38,386	796 (2.1%)	708 (1.8%)	1,504 (3.9%)	-88 (-0.2%)
Water Area	1,883	1,883	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Total Area Inventoried</b>	389,312	389,312	4,720 (1.2%)	4,720 (1.2%)	9,440 (2.4%)	0 (0.0%)

Source: DOC 2016

Notes:

<sup>1</sup> Based on 2012 to 2014 land use conversion data.



### 11.1.3 Solano County

A small portion, approximately 12,293 acres (17 percent), of the Yolo Bypass is in Solano County on lands designated as Agriculture. There would be no lands affected in Solano County associated with Project construction or implementation. Solano County encompasses approximately 910 square miles (approximately 582,300 acres), with the majority located in unincorporated areas. Most of land within the county is designated as Agricultural (Solano County 2008a). Table 11-5 summarizes the land use acreages in the county.

**Table 11-5. Summary and Change by Land Use Category for Solano County (2012 to 2014)**

Land Use Category	Total Acreage Inventoried		2012 to 2014 Acreage Changes			
	2012	2014	Acres Lost (-)	Acres Gained (+)	Total Acreage Changed	Net Acreage Changed
Prime Farmland	130,548	130,292	758 (0.6%)	502 (0.4%)	1,260 (1.0%)	-256 (-0.2%)
Farmland of Statewide Importance	6,429	6,545	15 (0.2%)	131 (2.0%)	146 (2.3%)	116 (1.8%)
Unique Farmland	8,958	9,222	85 (0.9%)	349 (3.9%)	434 (4.8%)	264 (2.9%)
Farmland of Local Importance	0	0	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Important Farmland Subtotal</b>	145,935	146,059	858 (0.6%)	982 (0.7%)	1,840 (1.3%)	124 (0.1%)
Grazing Land	210,633	210,153	1,147 (0.5%)	667 (0.3%)	1,814 (0.9%)	-480 (-0.2%)
<b>Agricultural Land Subtotal</b>	356,568	356,212	2,005 (0.6%)	1,649 (0.5%)	3,654 (1.0%)	-356 (-0.1%)
Urban and Built-up Land	60,027	60,488	22 (0.0%)	483 (0.8%)	505 (0.8%)	461 (0.8%)
Other Land	111,622	111,517	233 (0.2%)	128 (0.1%)	361 (0.3%)	-105 (-0.1%)
Water Area	54,153	54,153	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<b>Total Area Inventoried</b>	582,370	582,370	2,260 (0.4%)	2,260 (0.4%)	4,520 (0.8%)	0 (0.0%)

Source: DOC 2015b

Notes:

<sup>1</sup> Based on 2012 to 2014 land use conversion data.

## 11.2 Regulatory Setting

The following sections summarize relevant plans, policies, and regulations related to land use and agricultural resources in the area of analysis.

### **11.2.1 Federal Plans, Policies, and Regulations**

The Farmland Policy Act of 1981 is intended to minimize the impacts Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible Federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. It does not authorize the Federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. For the purposes of the Farmland Policy Act, farmland includes Prime Farmland, Unique Farmland, and Land of Statewide or Local Importance. Projects are subject to the Farmland Policy Act requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a Federal agency or with assistance from a Federal agency.

The Farmland Protection Policy Act established the Farmland Protection Program and the Land Evaluation and Site Assessment (LESA) system. The Natural Resources Conservation Service (NRCS) uses the LESA system to establish a farmland conversion impact rating.

### **11.2.2 State Plans, Policies, and Regulations**

The State of California (State) plans, policies, and regulations pertaining to land use and agricultural resources that may apply to the implementation of the project alternatives are described below.

#### **11.2.2.1 Williamson Act**

The Williamson Act, formally known as the California Land Conservation Act of 1965, enables local governments to enter into contracts with private landowners to promote the continued use of relevant land for agricultural or related open space use. The Williamson Act empowers local governments to establish “agricultural preserves” consisting of lands devoted to agricultural and other compatible uses. After such preserves are established, the locality may offer the owners of included agricultural land the opportunity to enter into annually renewable contracts that restrict the land to agricultural or open space use for a minimum of 10 years.

The Williamson Act was enhanced in 1998 with the FSZs (also known as Super Williamson Act lands) provisions. These provisions offer a minimum 20-year contract and must be in an “agricultural preserve” and designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance.

Table 11-2 summarizes farm acreage enrolled in the Williamson Act and FSZ program in 2012 and 2013.

#### **11.2.2.2 Farmland Mapping and Monitoring Program**

The FMMP was established in California in 1982 and provides maps and statistical data for analyzing potential impacts on agricultural resources within the State. The FMMP provides agricultural resource maps based on soil quality and land use and irrigation status. These maps are updated every two years with information gathered from aerial imagery, a computer mapping system, public review, and field reconnaissance. Lands are mapped into one of the following eight categories: Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Grazing Land, Urban and Built-up land, other land and water.

### **11.2.2.3 California LESA Model**

Similar to the Federal LESA system, the California LESA model was developed in 1997 to provide lead agencies with an optional methodology to ensure that significant effects associated with agricultural land conversions are fully considered in the environmental review process. The California LESA model is used to determine a project's potential significance by evaluating the project size, soil quality, water resource availability, and surrounding agricultural and protected resource lands.

### **11.2.2.4 California Farmland Conservancy Program**

The CFCP is a voluntary program that seeks to encourage the long-term, private stewardship of agricultural lands through the use of agricultural conservation easements. The CFCP provides grant funding for projects that use and support agricultural conservation easements for protection of agricultural lands. An agricultural conservation easement is a voluntary, legally recorded deed restriction that is placed on a specific property used for agricultural production. The goal of an agricultural conservation easement is to maintain agricultural land in active production by removing the development pressures from the land. Such an easement prohibits practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership.

## **11.2.3 Regional and Local Plans, Policies, and Regulations**

This section presents the regional and local plans, policies, and regulations that may be relevant to implementation of one or more of the project alternatives. Generally, State and federal agencies, as well as some local or regional agencies involved with the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, are not subject to local land use regulations; inconsistency with a specific local land use regulation is not by itself an adverse effect on the environment. However, this EIS/EIR, in assessing whether categories of environmental effects (e.g., biological or cultural resources) are adverse or beneficial (NEPA) or significant (CEQA), considers relevant local land use regulations that are adopted to avoid or mitigate an environmental impact.

Regional and local plans, policies, and regulations pertaining to land use and agricultural resources that are relevant to the implementation of the alternatives are described in the following subsections.

### **11.2.3.1 Yolo County**

Yolo County's *2030 Countywide General Plan Land Use and Community Character Element* describes the policies and standards for future land use and agricultural resource protection for rural and urban land use (County of Yolo 2009). The *Conservation and Open Space Element* addresses the conservation, development, and utilization of natural resources as well as open space lands used for a variety of purposes (County of Yolo 2009). Relevant policies included in the current general plan include:

- Policy AG-1.2: Maintain parcel sizes outside of the community growth boundaries large enough to sustain viable agriculture and discourage conversion to non-agricultural home sites.

- Policy AG-1.3: Prohibit the division of agricultural land for non-agricultural uses.
- Policy AG-1.4: Prohibit land use activities that are not compatible within agriculturally designated areas.
- Policy AG-1.5: Strongly discourage the conversion of agricultural land for other uses. No lands shall be considered for redesignation from Agricultural or Open Space to another land use designation unless all the following findings can be made:
  - There is a public need or net community benefit derived from the conversion of land that outweighs the need to protect the land for long-term agricultural use.
  - There are no feasible alternative locations for the proposed project that are either designated for non-agricultural land uses or are less productive agricultural lands.
  - The use would not have a significant adverse effect on existing or potential agricultural activities on surrounding land designated Agriculture.
- Policy AG-1.6: Continue to mitigate at a ratio of no less than 1:1 the conversion of farmland and/or the conversion of land designated or zoned for agriculture to other uses. This policy has been updated by the Agricultural Conservation and Mitigation Program (Section 8.2.402 of the County Zoning Code) to require mitigation at a ratio of 3:1 or 2:1, subject to potential adjustments.
- Policy AG-1.8: Regulate and encourage removal of incompatible land uses and facilities from agriculturally designated lands.
- Policy AG-2.8: Facilitate partnerships between agricultural operations and habitat conservation efforts to create mutually beneficial outcomes.
- Policy AG-2.9: Support the use of effective mechanisms to protect farmers potentially impacted by adjoining habitat enhancement programs, such as “safe harbor” programs and providing buffers within the habitat area.
- Policy AG-2.10: Encourage habitat protection and management that does not preclude or unreasonably restrict onsite agricultural production.
- Policy AG-6.1: Continue to promote agriculture as the primary land use in the portion of Yolo County that lies within the Primary Zone of the Sacramento-San Joaquin Delta.

Titles 1, 7, and 8 of the Yolo County Code address regulations related to the general rules of construction, building requirements, land development and zoning, agricultural mitigation, and habitat mitigation (Yolo County undated).

The Yolo Habitat Conservancy is currently preparing the *Yolo Habitat Conservation Plan/Natural Community Conservation Plan* (HCP/NCCP), a plan that would provide Endangered Species Act permits and associated mitigation for infrastructure and development activities in Yolo County within the next 50 years (Yolo Habitat Conservancy 2017). The HCP/NCCP could increase local control over endangered species laws and public and private activities by having permits administered through the Yolo Habitat Conservancy, with oversight from the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. This would help streamline the permitting application by eliminating the current system of separately permitting and mitigating individual projects and creating a conservation and mitigation program

that comprehensively coordinates the implementation of permit requirements through the development of a countywide conservation strategy. To complement the Yolo HCP/NCCP, the Yolo Regional Conservation Investment Strategy/Local Conservation Plan is being developed. The plan would identify conservation priorities and provide guidance for further non-regulatory conservation in Yolo County that address the conservation needs that are not addressed in the HCP/NCCP. The Yolo Regional Conservation Investment Strategy/Local Conservation Plan would establish guidelines for avoidance, minimization, and mitigation measures that conserve Yolo County's biological resources but would not provide the same level of protection as the HCP/NCCP.

### **11.2.3.2 Sutter County**

The Land Use Element of Sutter County's *2030 General Plan* provides direction on land use, conservation areas, and growth areas and guidance for conservation and growth in unincorporated Sutter County (Sutter County 2011). The General Plan's Agricultural Element provides direction for the preservation of agricultural operations and uses, the reduction of conflicts between agricultural operations and uses, the preservation of natural resources for agriculture, the expansion and diversification of natural resources for agricultural industries, and the promotion of agriculturally related visitor services and attractions. Relevant policies include:

- AG 1.1: Preserve and maintain agriculturally designated lands for agricultural use and direct urban/suburban and other nonagricultural-related development to the cities, unincorporated rural communities, and other clearly defined and comprehensively planned development areas.
- AG 1.5: Discourage the conversion of the agricultural land to other uses unless the following findings can be made:
  - The net community benefit derived from conversion of the land outweighs the need to protect the land for long-term agricultural use.
  - There are no feasible alternative locations for the proposed use that would appreciably reduce impacts upon agricultural lands.
  - The use will not have significant adverse effects, or can mitigate such effects, upon existing and future adjacent agricultural lands and operations.

### **11.2.3.3 Solano County**

Chapter 3 of the *Solano County General Plan* describes the county's agricultural goals and policies that support the growth and health of agriculture in Solano County (Solano County 2008b). Chapter 2.2 of Solano County's Code describes requirements for agricultural lands and operations within the unincorporated county (Solano County undated). Section 2.2-20 describes that it is the county's policy to conserve and protect both intensive and extensive agricultural land and to protect those lands for exclusive agricultural uses that do not interfere with agricultural operations (Solano County undated). Chapter 28 of the county's code establishes zoning regulations within the unincorporated county, including for agricultural districts.

Relevant policies include:

- Policy AG.P-1: Ensure agricultural parcels are maintained at a sufficient minimum parcel size so as to remain a farmable unit. Farmable units are defined as the size of parcels a farmer would consider viable for leasing or purchasing for different agricultural purposes. A farmable unit is not considered the sole economic function that will internally support a farm household.
- Policy AG.P-19: Require agricultural practices to be conducted in a manner that minimizes harmful effects on soils, air and water quality, and marsh and wildlife habitat.
- Policy AG.P-32: Lands within the Agriculture designation shown on the Land Use Diagram may be re-designated to a more intensive agricultural designation or to a rural residential designation (with a maximum density of one unit per 2.5 to 10 acres) if the Board of Supervisors makes each of the following findings:
  - That the approval will not constitute part of, or encourage, a piece-meal conversion of a larger agricultural area to residential or other non-agricultural uses and will not alter the stability of land use patterns in the area
  - That no land proposed for re-designation is prime agricultural land as defined pursuant to California Government Code Section 51201 (the California Land Conservation Act of 1965, also known as the Williamson Act)
  - That the subject land is unsuitable for agriculture due to terrain, adverse soil conditions, drainage, flooding, parcel size, or other physical factors such that it has no substantial market or rental value under the Agriculture designation
  - That the use and density proposed are compatible with agricultural uses and will not interfere with accepted farming practices
  - That the land is immediately adjacent to existing comparably developed areas and the applicant for the re-designation has provided substantial evidence that the fire district, school district, county sheriff, the area road system, and the proposed water supplier have adequate capacity to accommodate the development and provide it with adequate public services
  - That annexation to a city or incorporation is not appropriate or possible based on the following factors: nearby cities' designated sphere of influence boundaries, cities' general plan growth limits and projections, and comprehensive annexation plans.

### **11.3 Environmental Consequences**

This section describes the environmental consequences associated with the Project alternatives and the No Action Alternative on land use and agricultural resources in the Yolo Bypass. This section presents the assessment methods performed to analyze the effects on land use and agricultural resources and the potential environmental consequences and mitigation measures as they relate to each Project alternative. Detailed descriptions of the alternatives evaluated in this chapter are provided in Chapter 2, *Description of Alternatives*.

### 11.3.1 Methods for Analysis

Construction and long-term operations of the Project alternatives could affect land use and agricultural resources in Yolo, Sutter, and Solano counties. Operation of Project alternatives could also affect agricultural resources through the conversion of agricultural lands to nonagricultural use because of increased inundation in the Yolo Bypass. This analysis assesses any permanent conversions of agricultural land to nonagricultural uses relative to the existing conditions (for CEQA) and the No Action Alternative (for NEPA). Changes in land use could result in incompatible uses and adverse effects. This analysis assumes that all Prime Farmland, Unique Farmland, and Farmland of Statewide Importance are protected under the Williamson Act or other land conservation programs.

Impacts to land use are determined relative to existing conditions (for CEQA) and the No Action Alternative (for NEPA). However, the No Action Alternative would be similar to existing conditions because land uses are not anticipated to experience substantive changes in the area of analysis through 2030, based on the planning projections in the county general plans. The county general plans provide planning guidelines and support for resource management and conservation through 2030, supporting the assumption that existing conditions in the area will not change substantially before the next general plan is developed. The No Action Alternative represents the future conditions that would exist without the implementation of the project, which would be similar to existing conditions. Modeling used in this section compares the proposed alternatives to existing conditions. Therefore, although NEPA requires comparison to the No Action Alternative, the analysis compares the impacts of the action alternatives to existing conditions because the No Action Alternative would be similar to existing conditions.

#### 11.3.1.1 Models Used

This analysis used information estimated by multiple models to determine land use impacts that would result from the implementation of the Project alternatives. Models that contributed to this analysis include:

- **Two-Dimensional Unsteady Flow Modeling (TUFLOW)** – Used to assess hydraulic impacts, including inundation periods and affected acreages and agricultural impacts, in the Yolo Bypass and surrounding areas, TUFLOW facilitates a comparison of depth, duration, and frequency of flooding between existing and proposed conditions. The TUFLOW model is described in Appendix D.
- **DAYCENT Model** – Used to estimate crop yields on a subset of fields throughout the Yolo Bypass, the DAYCENT model estimates the yield on any given field, taking into account all production conditions, including climate and date the crop was planted. The model was calibrated against data for corn, rice, safflower, sunflower, processing tomato, alfalfa, and mixed melons. The DAYCENT model is described in Appendix J1, *Bypass Production Model Technical Appendix*.
- **Bypass Production Model (BPM)** – Used to model agriculture in the Yolo Bypass, the BPM relates changes in crop yield and total affected acres to changes in agricultural production and revenues. The BPM incorporates data from TUFLOW as inputs for anticipated overtopping events and other impacts. Crop yield functions estimated by the

DAYCENT model are used along with additional economic data to calibrate the BPM. The BPM is described in Appendix J1.

- **Impact Planning and Analysis (IMPLAN)** – Used to estimate the effects on employment, labor income, and total value output directly and indirectly associated with construction and reduced crop production, IMPLAN calculates the economic impacts of a change in value of production. IMPLAN is described in Section 16.3.1.1, *Construction and Annual Expenditure Effects*, in Chapter 16, *Socioeconomics*.

### **11.3.2 Thresholds of Significance – CEQA**

Consistent with the CEQA Guidelines, impacts on land use and agricultural resources would be considered significant if implementation of the Project alternatives would:

- Physically divide a community or conflict with any relevant land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted to avoid or mitigate an environment effect
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, including lands enrolled in the Williamson Act and other conservation programs, to nonagricultural or incompatible uses

These thresholds of significance for impacts encompass the factors under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts.

### **11.3.3 Effects and Mitigation Measures**

This section provides an evaluation of the direct and indirect effects of implementing the Project alternatives on land use and agricultural resources in the Project. This analysis is organized by Project alternative, with specific impact topics numbered sequentially under each alternative.

#### **11.3.3.1 No Action Alternative**

Under the No Action Alternative, the Project would not be implemented, and none of the Project components would be developed.

##### **11.3.3.1.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Under the No Action Alternative, Project components would not be developed in the Project area; therefore, there would not be any activities that would physically divide a community or conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. The No Action Alternative would not result in any changes to existing conditions.



*CEQA Conclusion*

There would be **no impact** resulting from the No Action Alternative regarding physically dividing a community or conflicting with a relevant land use plan, policy, or regulation because Project components would not be developed in the Project area.

**11.3.3.1.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Under the No Action Alternative, Project components would not be developed in the Project area; therefore, no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance enrolled in the Williamson Act or other conservation programs would be converted to an incompatible use. However, under existing conditions, water shortages and other factors (such as low commodity prices) have increased land idling in the region. Some lands could be taken out of production for the long term if shortages are expected to prolong and increase. Any lands temporarily taken out of production would not affect the Williamson Act or other land conservation programs, but some lands could be reclassified as Non-Prime. If reclassified, the land would remain in the program and still be compatible with agricultural uses.

*CEQA Conclusion*

There would be **no impact** to Prime Farmland, Unique Farmland, and Farmland of Statewide Importance or lands enrolled in the Williamson Act or other conservation programs under the No Action Alternative because Project components would not be developed in the Project area.

**11.3.3.2 Alternative 1: East Side Gated Notch**

Alternative 1, East Side Gated Notch, would allow increased flow from the Sacramento River to enter the Yolo Bypass through a gated notch on the east side of Fremont Weir. The invert of the new notch would be at an elevation of 14 feet, which is approximately 18 feet below the existing Fremont Weir crest. Alternative 1 would allow up to 6,000 cubic feet per second (cfs) to flow through the notch during periods when the river levels are not high enough to go over the crest of Fremont Weir to provide open channel flow for adult fish passage. See Section 2.4 for more details on the alternative features.

**11.3.3.2.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Implementation of Alternative 1 and the associated construction activities would not physically divide a community because there is not a community present to be divided. Section 11.2.3 summarizes agricultural land-related policies in Yolo, Sutter, and Solano counties. The counties have policies to protect and maintain agricultural land uses. Lands currently subject to agricultural activities, including those under conservation easements would continue to be farmed and remain subject to existing easements and restrictions. Land use designations would not be changed, and the alternative would not conflict with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect.

*CEQA Conclusion*

Impacts to land use would be **less than significant** because Project actions associated with Alternative 1 would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environment effect and would not occur near a community.

**11.3.3.2.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 1 would permanently affect approximately 31 acres of agricultural land (grazing land and Farmland of Local Potential) within the project footprint and temporarily affect an additional 14 acres. Permanently affected lands would represent a loss in grazing land and a reduction in crop yields where agricultural production would no longer be feasible due to the construction of project structures. The permanently affected land includes 25 acres of grazing land and 6 acres of Farmland of Local Potential. There would be no permanent or temporary conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Figure 11-4 shows the underlying land use designations in the areas where construction impacts from Alternative 1 would occur. The affected lands that are designated as grazing lands are within the FWWA. While this land is mapped as grazing land, it is not typically used for grazing.

Implementation of Alternative 1 could affect farmland within the entire Yolo Bypass through increased periods of inundation, also referred to as effects related to operations. There are 24,708 acres within the Yolo Bypass that are designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. If increased inundation periods affected all 24,708 acres of these three categories in the Yolo Bypass, it would account for approximately 6.8 percent of all Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Yolo County. The timing of increased inundation determines whether there would be an impact on agricultural practices because the longer fields remain wet, the later farmers can begin planting. If planting dates are substantially delayed, farmers may choose to remove the land from production or shift to alternate crops. In an average year (including average rice prices), a June 1 planting date is the end of the standard planting window for most Yolo Bypass crops (see Appendix J1). The “planting date” estimated for this analysis is the result of three assumptions: 1) the calculation of the “last day wet” (estimated by the TUFLOW model), which is defined as the date the ground is dry enough for tractors to disk the fields, 2) a drying time adjustment of six days to reflect additional drying time before field preparation begins, and 3) a preparation and planting period of 28 days.

Alternative 1 was developed to only allow flows to increase inundation until March 15 to avoid impacts to agricultural uses in the bypass (The gate could operate after March 15 for fish passage but would only allow flows into the Yolo Bypass that would stay in-channel in the Tule Canal). During the inundation period, the new gated notch would allow flows to enter the Yolo Bypass before and after Fremont Weir overtopping events. Figures 11-5 and 11-6 help characterize the inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time.

The TUFLOW model estimated the last day lands in the Yolo Bypass would be wet, referred to as the last day wet, as a result of water releases through Fremont Weir gates under Alternative 1 and compared the last day wet to existing conditions. Based on the model results, if the last day inundation flows would be released through the proposed operable gate at Fremont Weir is March 15, the resulting additional days fields would remain wet would only rarely result in planting dates after June 1 and there would be no change to FMMP land use designations. There would still be potential yield losses, however, since a March 15 end date could delay planting relative to existing conditions, as shown in Figure 11-7. These effects are discussed in Chapter 16, *Socioeconomics*. Figure 11-7 presents the difference in the last wet day between Alternative 1 and existing conditions. Figure 11-7 shows conditions in 2002 because that year had the greatest change in last day wet of all years modeled (1997 through 2012). While increased inundation could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the lands would not be taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

#### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 1 would be **less than significant** because Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not be converted to nonagricultural uses by alternative construction or increased periods of inundation.

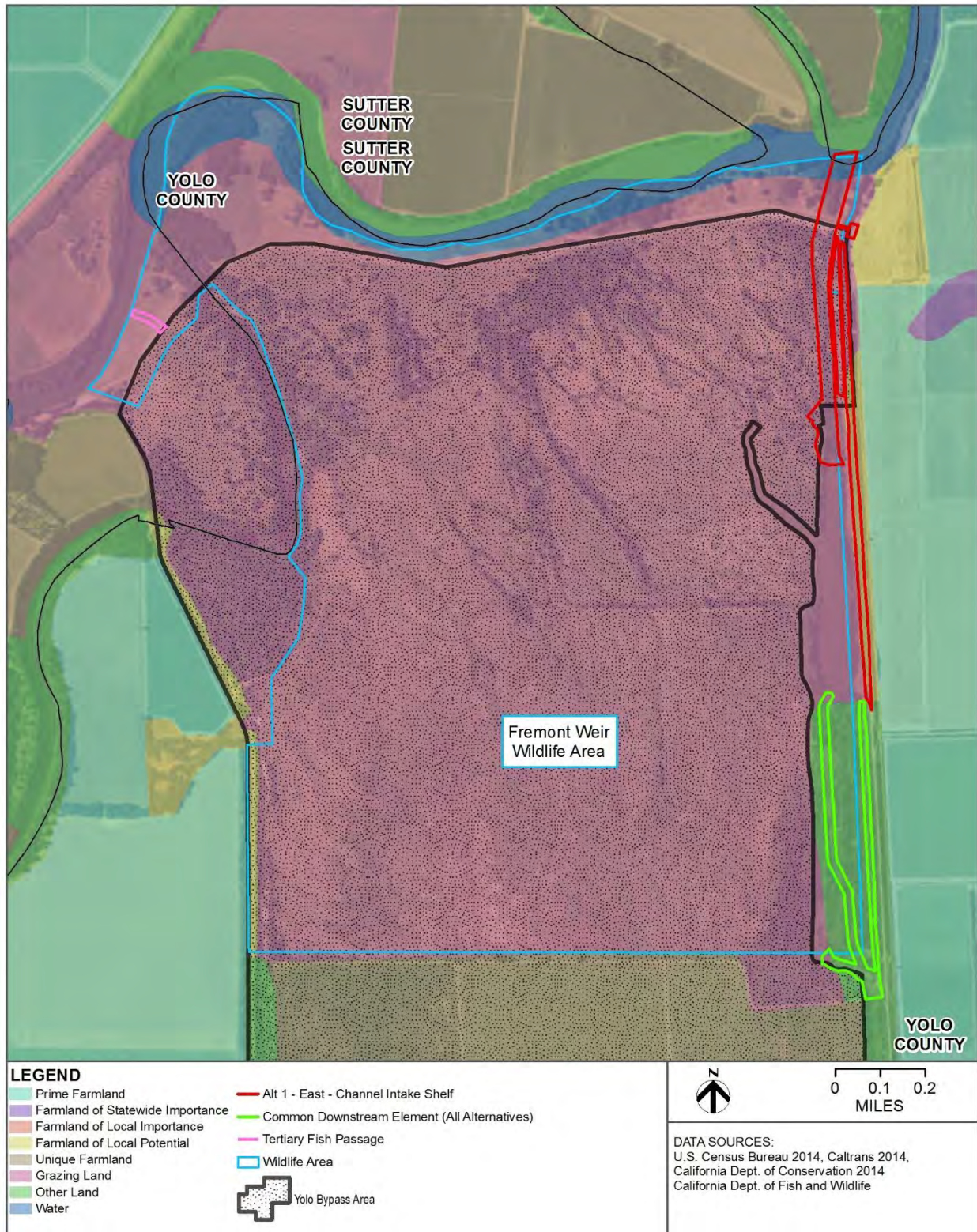
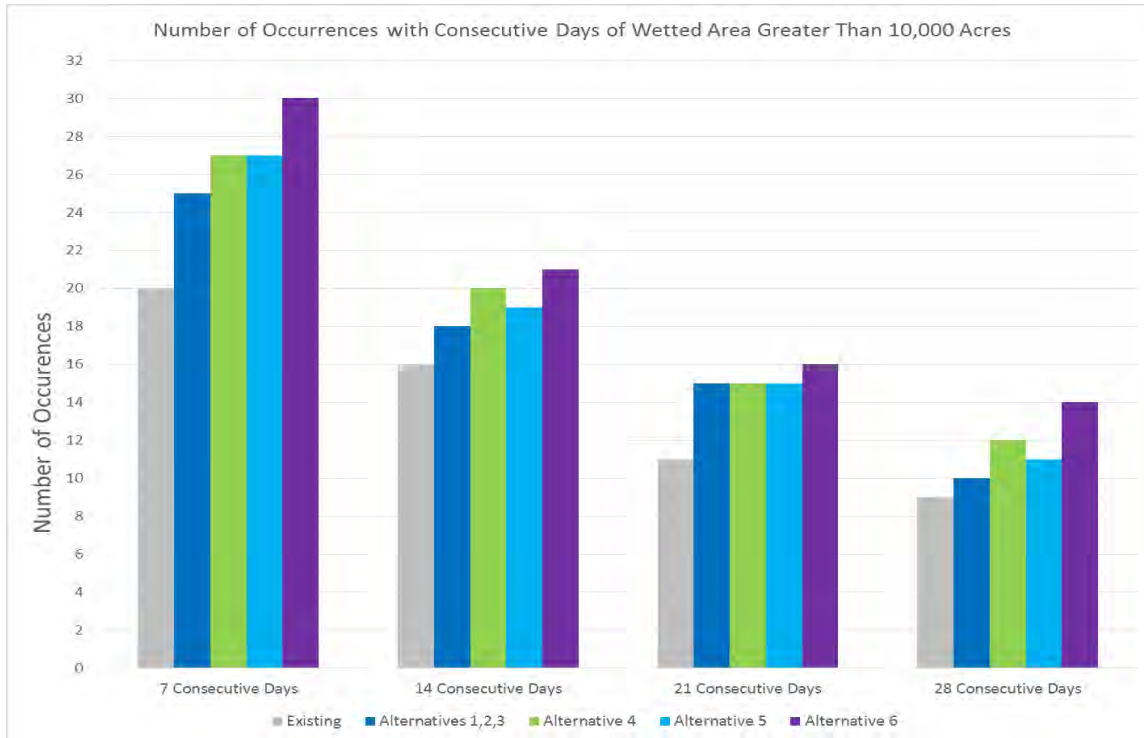
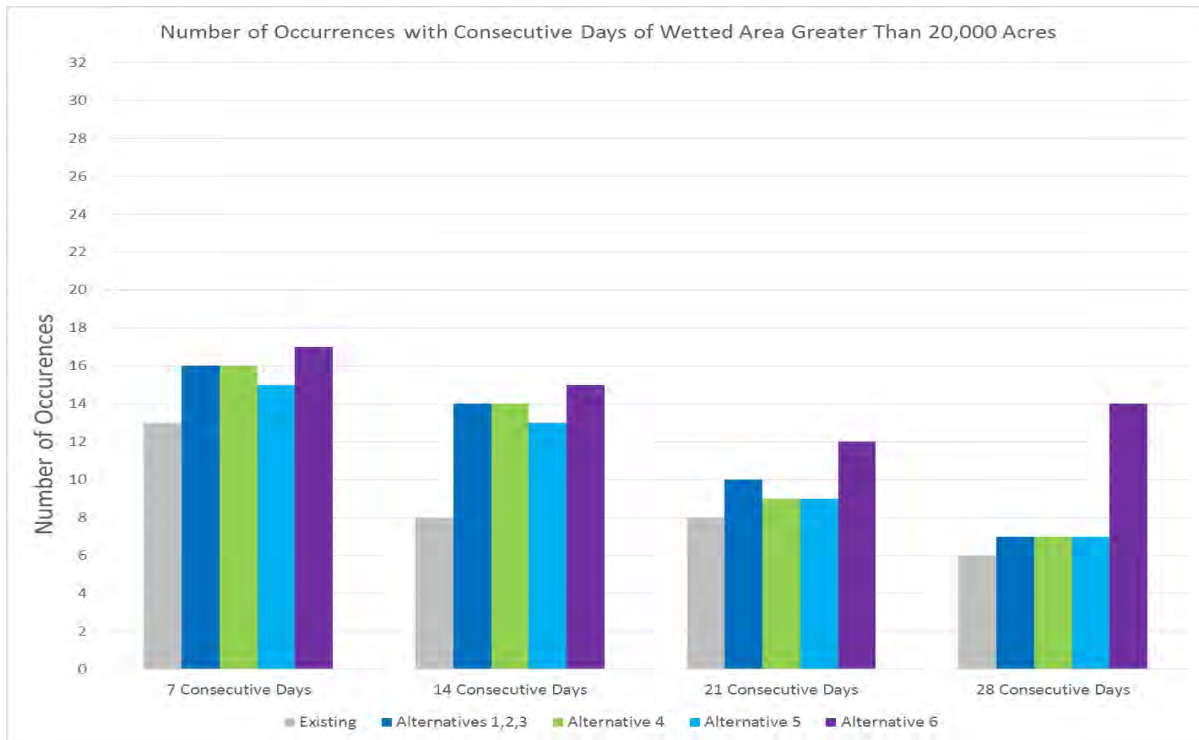


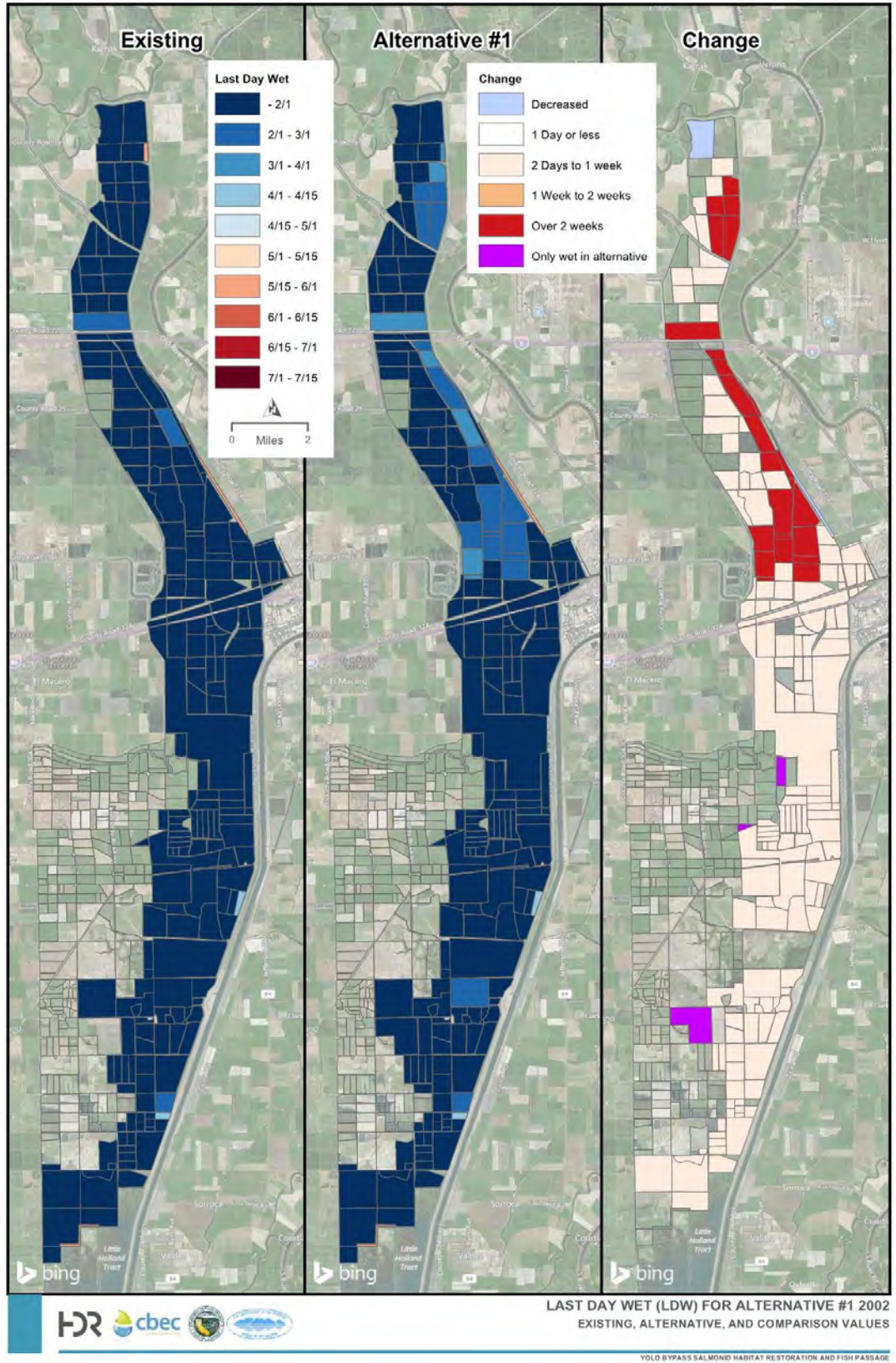
Figure 11-4. Areas of Land Use Impacts under Alternative 1



**Figure 11-5. Number of Occurrences with Consecutive Days of Wetted Areas Greater than 10,000 Acres**



**Figure 11-6. Number of Occurrences with Consecutive Days of Wetted Areas Greater than 20,000 Acres**



**Figure 11-7. Greatest Change in Last Day Wet of all Years Modeled for Fields in the Yolo Bypass under Alternative 1 Compared to Existing Conditions (2002)**

### **11.3.3.3 Alternative 2: Central Gated Notch**

Alternative 2, Central Gated Notch, would provide a similar new gated notch through Fremont Weir as described for Alternative 1. The primary difference between Alternatives 1 and 2 is the location of the notch; Alternative 2 would site the notch near the center of Fremont Weir. This gate would be similar in size to Alternative 1 but would have an invert elevation that is higher (14.8 feet) because the river is higher at this upstream location. The gate also would allow up to 6,000 cfs through to provide open channel flow for adult fish passage. See Section 2.5 for more details on the alternative features.

#### **11.3.3.3.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Impacts to land use from the implementation of Alternative 2 would be similar to those discussed for Alternative 1. Alternative 2 would not divide a community because there are no communities present within the Project area and would not conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. Agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

#### *CEQA Conclusion*

Impacts to land use resulting from implementation of Alternative 2 would be **less than significant** because Project actions associated with Alternative 2 would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

#### **11.3.3.3.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 2 would permanently affect approximately 61 acres of agricultural land (grazing land and Farmland of Local Importance) within the project footprint and temporarily affect an additional 11 acres. Permanently affected lands would represent a loss in grazing land where it would no longer be feasible due to the construction of project structures. The permanently affected land includes 61 acres of grazing land that are within the FWWA and typically not used for grazing purposes. There would be no permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Figure 11-8 shows the underlying land use designations in the areas where construction impacts for Alternative 2 would occur.

Implementation of Alternative 2 could affect farmland within the entire Yolo Bypass through increased periods of inundation, also known as effects from operations. As discussed for Alternative 1, the last day that parcels are wet affects the planting schedules for agricultural production in the Yolo Bypass. The longer fields remain wet, the later planting can begin. If planting is delayed beyond June 1 (the last date to begin planting, on average, as described in Section 3.2 of Appendix J1), the lands may not be planted that year. Figures 11-5 and 11-6 help

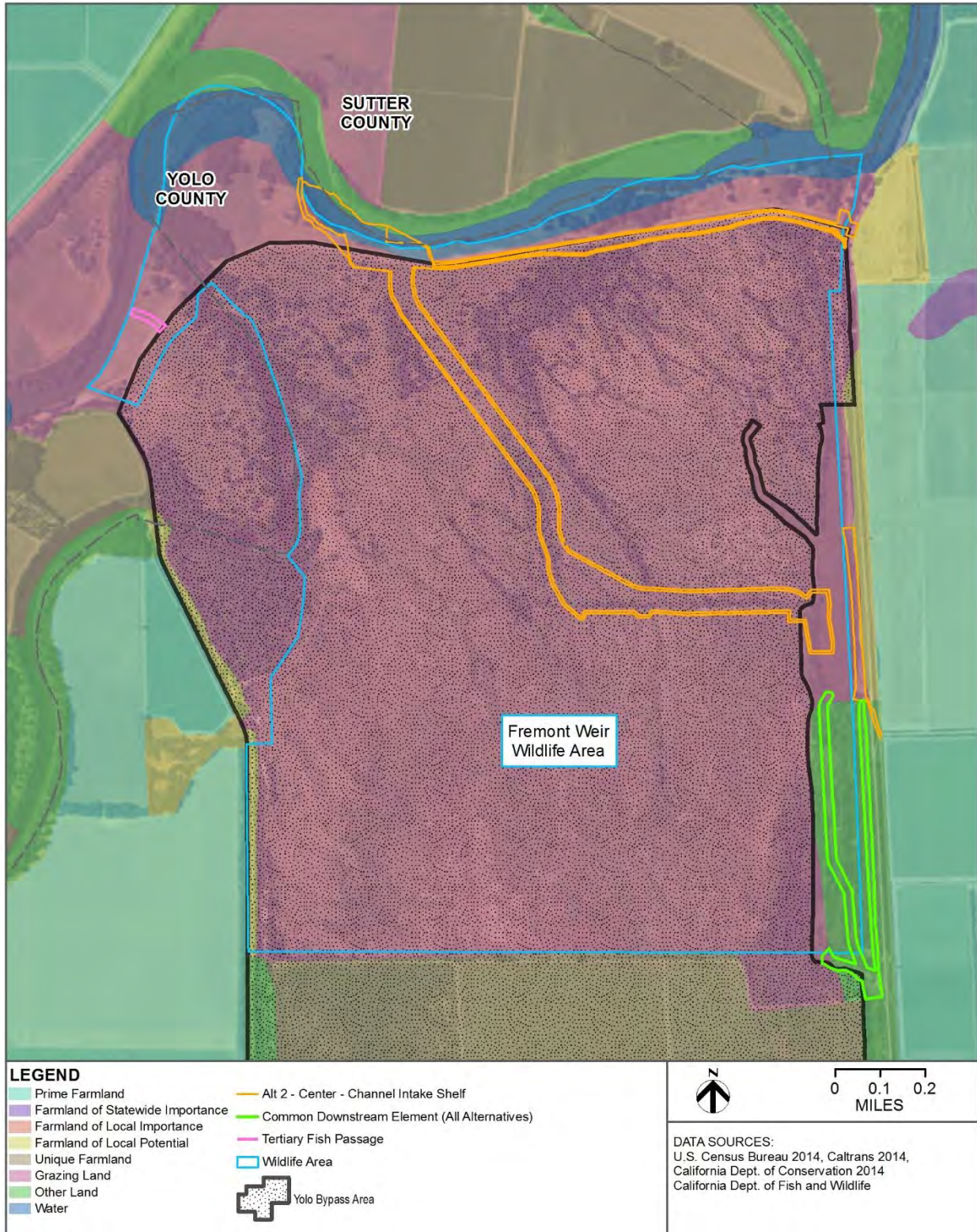
characterize the inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time.

For Alternative 2, the gated notch at Fremont Weir would not allow inundation flows to enter the Yolo Bypass after March 15. Flows and facility operations under Alternative 2 would be the same as those under Alternative 1; therefore, model results for Alternative 1 represent the potential impacts under Alternative 2. Based on the model results, if the last day inundation flows would be released through the proposed operable gate at Fremont Weir is March 15, the resulting additional days fields would remain wet would only rarely result in planting dates after June 1 and there would be no change to FMMP land use designations. There would still be potential yield losses, however, because a March 15 end date could delay planting relative to existing conditions, as shown in Figure 11-7. These effects are discussed in Chapter 16, *Socioeconomics*. Figure 11-7 presents the comparison of the last wet day between Alternative 1 (which is representative of Alternative 2) and existing conditions. While increased inundation could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 2 would be **less than significant** because Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not be converted to nonagricultural uses by alternative construction or increased periods of inundation.





**Figure 11-8. Areas of Land Use Impacts under Alternative 2**

#### **11.3.3.4 Alternative 3: West Side Gated Notch**

Alternative 3, West Side Gated Notch, would provide a similar new gated notch through Fremont Weir as described for Alternative 1. The primary difference between Alternatives 1 and 3 is the location of the notch; Alternative 3 would site the notch on the western side of Fremont Weir. This gate would be a similar size but would have an invert elevation that is higher (16.1 feet) because the river is higher at this upstream location. Alternative 3 would allow up to 6,000 cfs through the gated notch to provide open channel flow for adult fish passage. See Section 2.6 for more details on the alternative features.

##### **11.3.3.4.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Impacts to land use from the implementation of Alternative 3 would be similar to those discussed for Alternative 1. Actions associated with Alternative 3 would not divide a community as there are no communities present to be divided and should not conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. Agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

##### *CEQA Conclusion*

Impacts to land use resulting from implementation of Alternative 3 would be **less than significant** because Project actions associated with Alternative 3 would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

##### **11.3.3.4.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 3 would permanently affect approximately 52 acres of agricultural land (grazing land and Farmland of Local Potential) within the project footprint and temporarily affect an additional 14 acres. Permanently affected lands would represent a loss in grazing land where it would no longer be feasible due to the construction of project structures. The permanently affected land includes 52 acres of grazing land in the FWWA that are typically not used for grazing purposes. There would be no permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Figure 11-9 shows the underlying land use designations in the areas where construction impacts from Alternative 3 would occur.

Implementation of Alternative 3 could affect farmland within the entire Yolo Bypass through increased periods of inundation, also known as effects from operations. As discussed for Alternative 1, the last day that parcels are wet affects the planting schedules for agricultural production in the Yolo Bypass. The longer fields remain wet, the later planting can begin. If planting is delayed beyond June 1 (the last date to begin planting, on average, as described in Section 3.2 of Appendix J1), the lands may not be planted that year. Figures 11-5 and 11-6 help characterize the

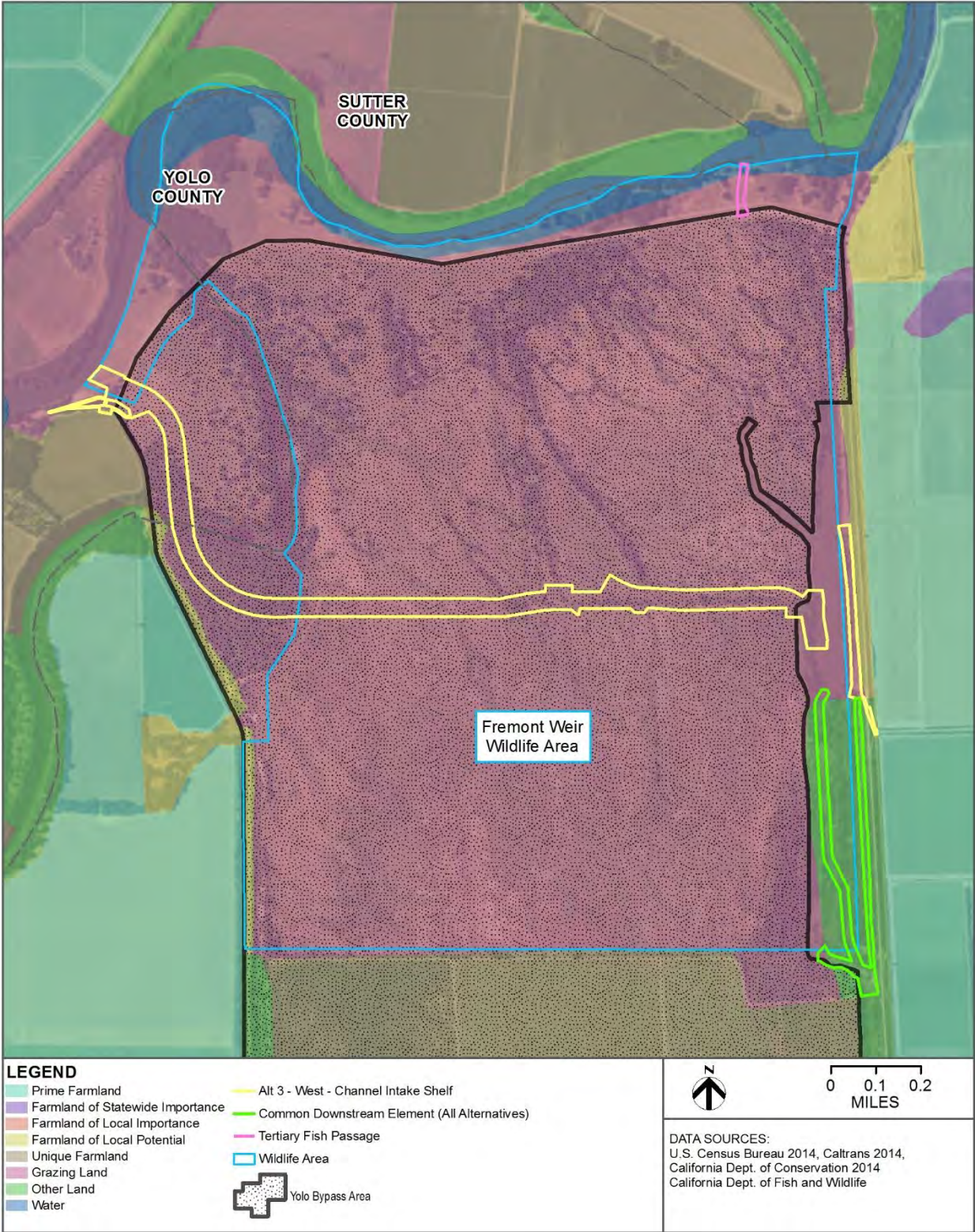


Figure 11-9. Areas of Land Use Impacts under Alternative 3

inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time.

For Alternative 3, the gated notch at Fremont Weir would not allow inundation flows to enter the Yolo Bypass after March 15. Flows and facility operations under Alternative 3 would be the same as those under Alternative 1; therefore, model results for Alternative 1 represent the potential impacts under Alternative 3. Based on the model results, if the last day inundation flows would be released through the proposed operable gate at Fremont Weir is March 15, the resulting additional days fields would remain wet would only rarely result in planting dates after June 1 and there would be no change to FMMP land use designations. There would still be potential yield losses, however, because a March 15 end date could delay planting relative to existing conditions, as shown in Figure 11-7. These effects are discussed in Chapter 16, *Socioeconomics*.

Figure 11-7 presents the comparison of the last wet day between Alternative 1 (which is representative of Alternative 3) and existing conditions. While increased inundation could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

#### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 3 would be **less than significant** because Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not be converted to nonagricultural uses by alternative construction or increased periods of inundation.

#### **11.3.3.5 Alternative 4: West Side Gated Notch – Managed Flow**

Alternative 4, West Side Gated Notch – Managed Flow, would have a smaller amount of flow entering the Yolo Bypass through the gated notch in Fremont Weir than some other alternatives, but it would incorporate water control structures to maintain inundation for longer periods of time within the northern portion of the Yolo Bypass. Alternative 4 would include the same gated notch and associated facilities as described for Alternative 3; however, it would be operated to limit the maximum inflow to 3,000 cfs. See Section 2.7 for more details on the alternative features.

##### **11.3.3.5.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Impacts to land use from the implementation of Alternative 4 would be similar to those discussed for Alternative 1. Alternative 4 actions would not divide a community as there are no communities present to be divided and should not conflict with land use plans, policies, or

regulations adopted to avoid or mitigate an environmental effect. Agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

#### *CEQA Conclusion*

Impacts to land use resulting from implementation of Alternative 4 would be **less than significant** because Project actions would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

#### **11.3.3.5.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 4 would permanently affect approximately 101 acres of agricultural land, including one acre of Prime Farmland and 30 acres of Unique Farmland, within the project footprint and temporarily affect an additional 84 acres, including two acres of Prime Farmland and 50 acres of Unique Farmland. Permanently affected lands would represent a loss in grazing land and a reduction in crop yields where agricultural production would no longer be feasible due to the construction of project structures. These lands are mainly grazing land (70.3 acres) and Unique Farmland (30 acres). The amount of Prime Farmland and Unique Farmland that would be permanently affected by the Alternative 4 project footprint would account for less than one percent of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (30.6 of over 313,810 acres) in Yolo County. This change to less than one percent of the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Yolo County is within the typical range of lost acreage fluctuations experienced in the area. Figure 11-10 shows the underlying land use designations in the areas where construction impacts from Alternative 4 would occur. Most of the grazing lands that would be affected are in the FWWA and not typically used for grazing.

Similar to Alternative 1, implementation of Alternative 4 could affect additional farmland within the Yolo Bypass through increased periods of inundation. The majority of the Yolo Bypass is designated as Unique Farmland and makes up nearly seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. The longer fields remain wet, the later planting can begin. If planting is delayed beyond June 1 (the last date to begin planting, on average, as described in Section 3.2 of Appendix J1), the lands may not be planted that year. Figures 11-5 and 11-6 help characterize the inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time.

The TUFLOW model estimated changes to the last day lands would remain wet as a result of water released from Fremont Weir under Alternative 4 compared to existing conditions. The model was run once with a March 15 date for the end of inundation flows and again with a date of March 7. These comparisons are presented in Figures 11-11 and 11-12. These figures present the difference in last day wet between Alternative 4 and existing conditions. The figures show conditions in 2002 because that year had the greatest change in last day wet of all years modeled (1997 through 2012). Under both scenarios, the additional wet period experienced by lands in the

bypass under Alternative 4 was not found to be outside of the typical planting window (between March 15 and June 1, as described in Section 3.2 of Appendix J1). However, there would still be potential yield losses, because the suggested dates for the end of inundation flow releases (March 15 and March 7) could delay planting relative to existing conditions. These effects are discussed in Chapter 16, *Socioeconomics*. Both the March 15 end date and the March 7 end date result in no permanent land use conversion, so they do not have different impacts regarding converting Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. While project implementation could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance because of increased periods of inundation, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

#### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 4 would be **significant** because there would be a change to Prime Farmland and Unique Farmland.

#### *Mitigation Measure MM-AGR-1: Purchase Agricultural Conservation Easements.*

The following activities will be implemented where feasible to minimize adverse effects on existing Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in production and limit the extent of the lands in these three categories that would be converted to non-agricultural uses.

- When selecting locations for staging areas and spoils sites, minimize the fragmentation of lands that are to remain in agricultural use and retain contiguous parcels of agricultural land of sufficient size to support their efficient use for continued agricultural production.
- Purchase property interests in agricultural lands (e.g., conservation easements), requiring the preservation and/or enhancement of other land of similar agricultural quality and acreage, either directly or indirectly, to mitigate for permanently converted Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. Where feasible, the agricultural conservation easements should be acquired in the county in which the conversions would take place, Yolo County. If there is not a sufficient supply of similar Prime Farmland, Unique Farmland, or Farmland of Statewide Importance in the county where the conversions would occur, the agricultural conservation easements may be obtained in a different county.

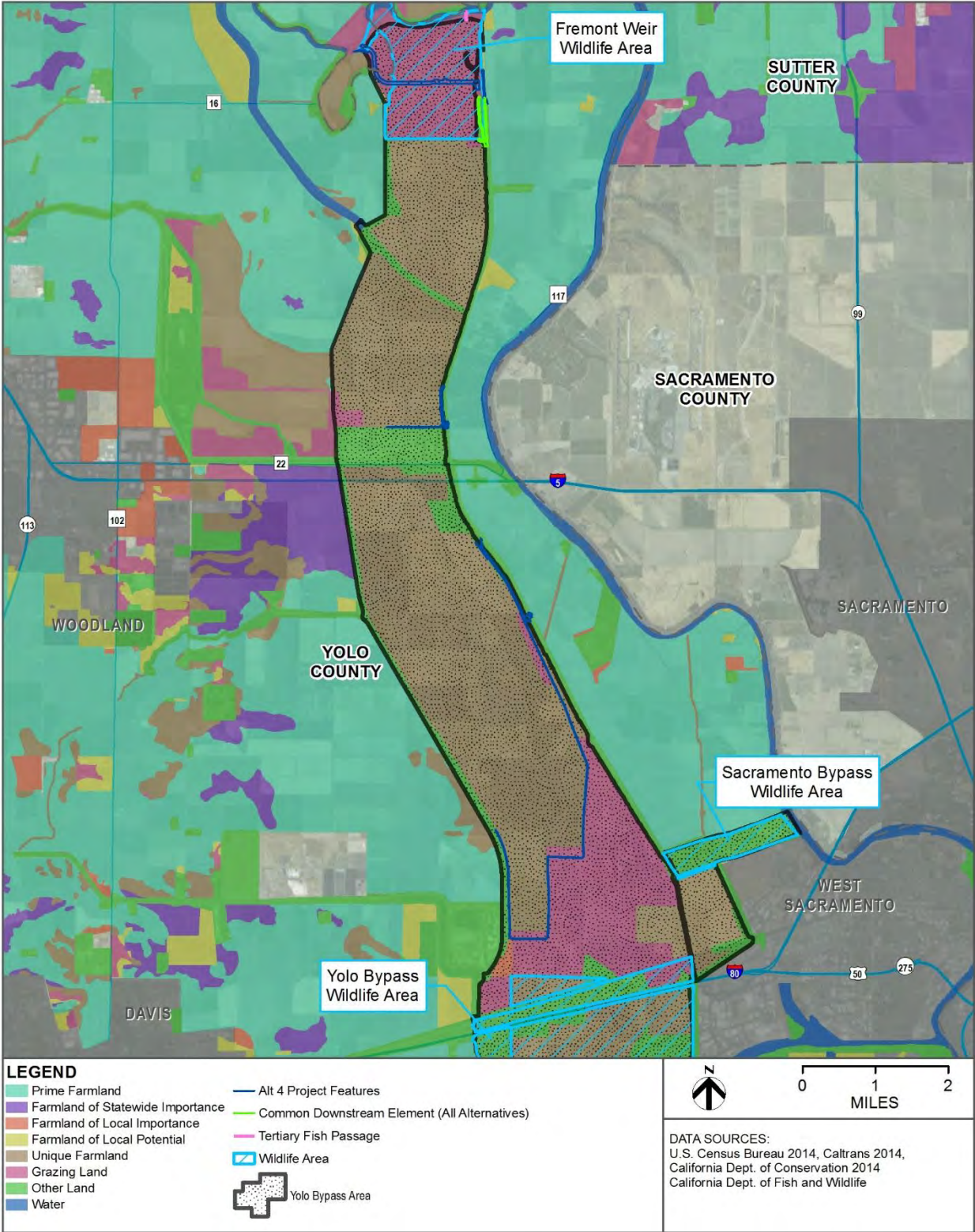
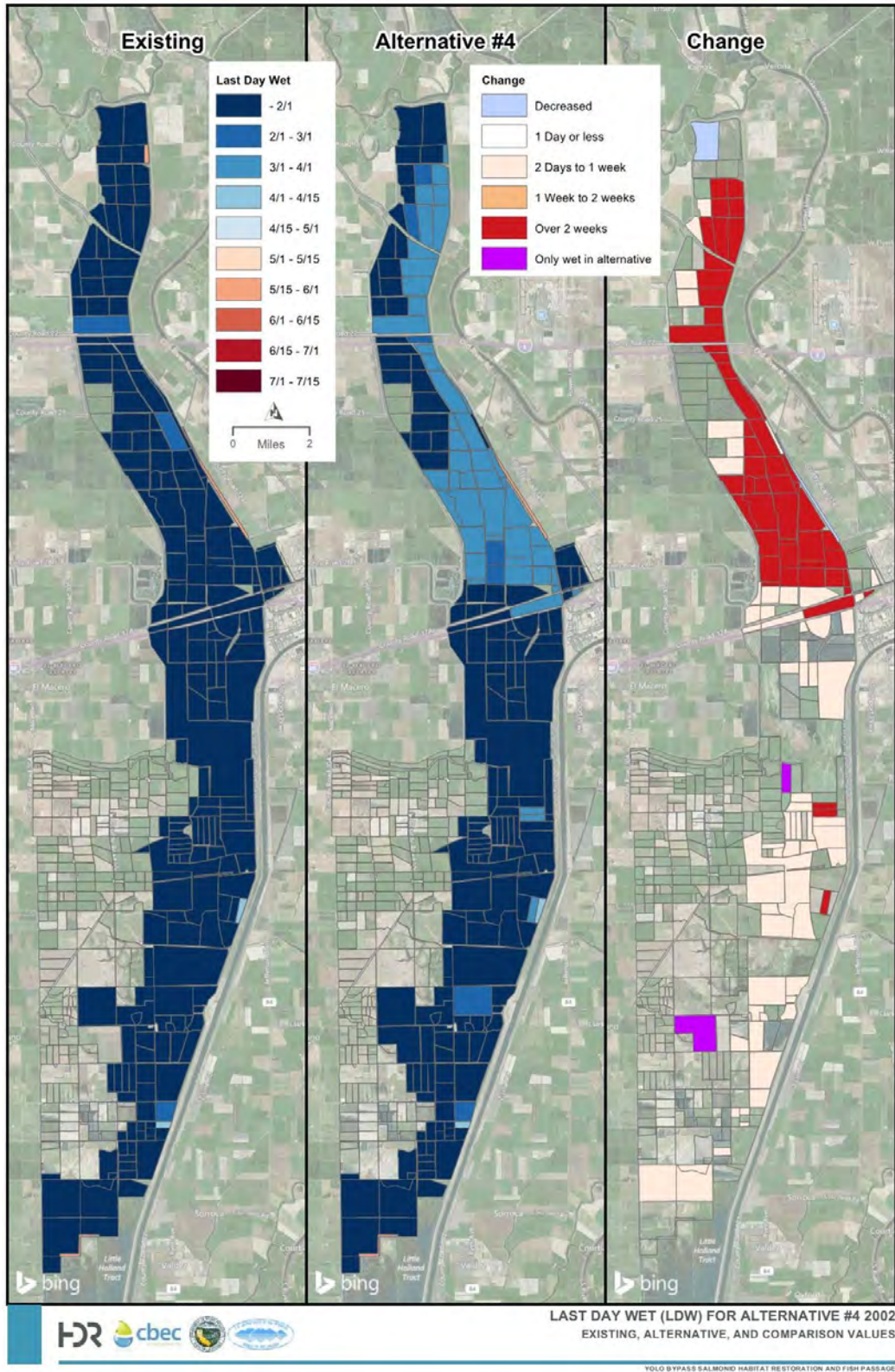
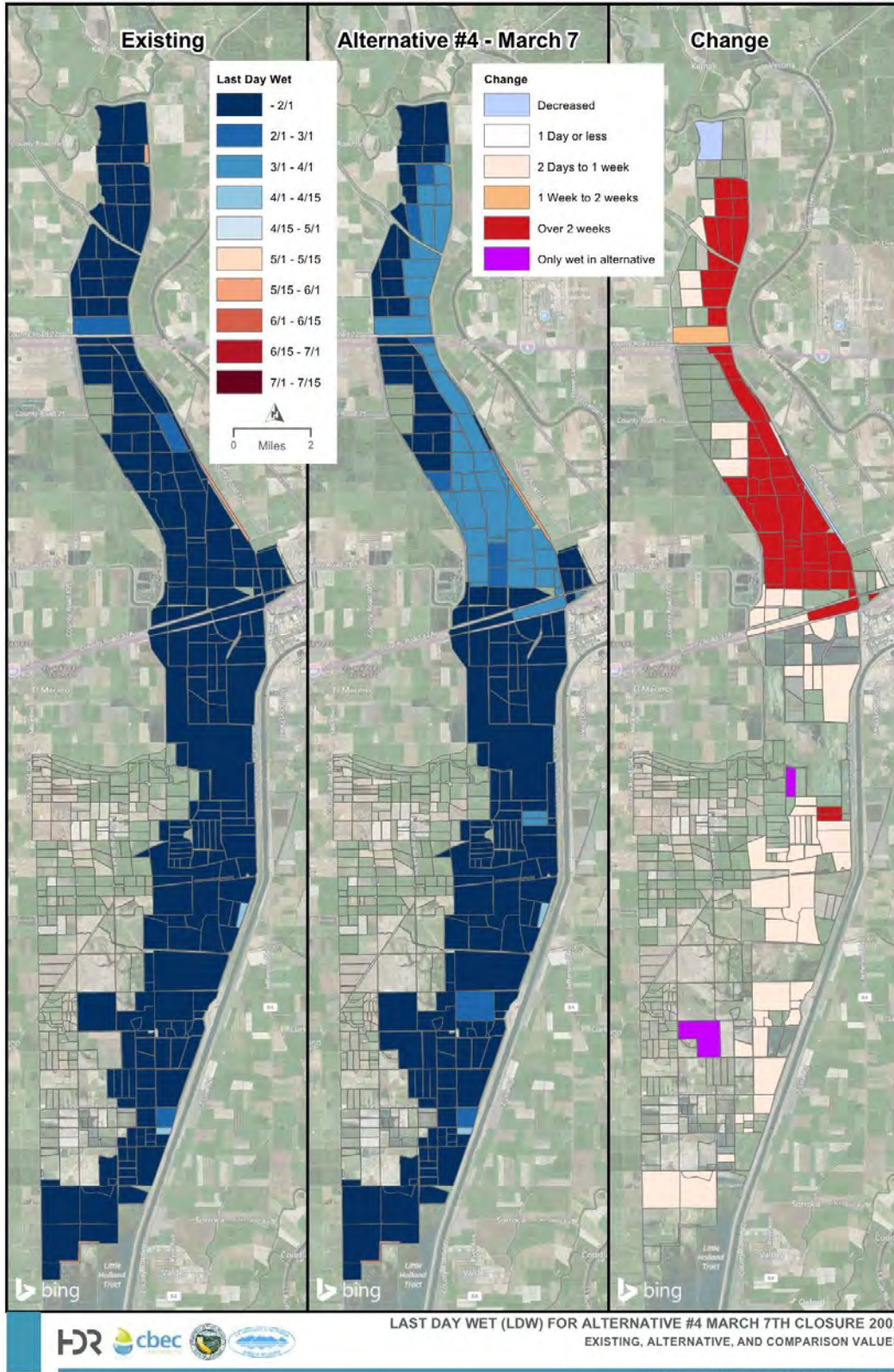


Figure 11-10. Areas of Land Use Impacts under Alternative 4



**Figure 11-11. Greatest Change in Last Day Wet of all Years Modeled for Fields in the Yolo Bypass under Alternative 4 Compared to Existing Conditions (2002) with End Date of March 15**





**Figure 11-12. Greatest Change in Last Day Wet of all Years Modeled for Fields in the Yolo Bypass under Alternative 4 Compared to Existing Conditions (2002) with End Date of March 7**

The acquisition of agricultural conservation easements included in Mitigation Measure MM-AGR-1 would reduce these impacts; however, conservation by means of acquiring agricultural conservation easements would not avoid a net loss of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and the impact would be remain **significant and unavoidable**.

### **11.3.3.6 Alternative 5: Central Multiple Gated Notches**

Alternative 5, Central Multiple Gated Notches, would improve the entrainment of fish by using multiple gates and intake channels so that the deeper gate could allow more flow to enter the bypass when the river is at lower elevations. Flows would move to other gates when the river is higher to control inflows. Alternative 5 incorporates multiple gated notches in the central location on the existing Fremont Weir that would allow combined flows of up to 3,400 cfs. See Section 2.8 for more details on the alternative features.

#### **11.3.3.6.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Impacts to land use from the implementation of Alternative 5 would be similar to those discussed for Alternative 1. Alternative 5 actions would not divide a community because there is no community present to be divided and should not conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. Agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

#### *CEQA Conclusion*

Impacts to land use resulting from implementation of Alternative 5 would be **less than significant** because Alternative 5 actions would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

#### **11.3.3.6.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 5 would permanently affect approximately 77 acres of agricultural land (grazing lands) within the project footprint and would temporarily affect an additional 27 acres. Permanently affected lands would represent a loss in grazing land and a reduction in crop yields where agricultural production would no longer be feasible due to the construction of project structures. There would be no permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Figure 11-13 shows the underlying land use designations in the areas where construction impacts from Alternative 5 would occur. Most of the grazing lands that would be affected are in the FWWA and not typically used for grazing.

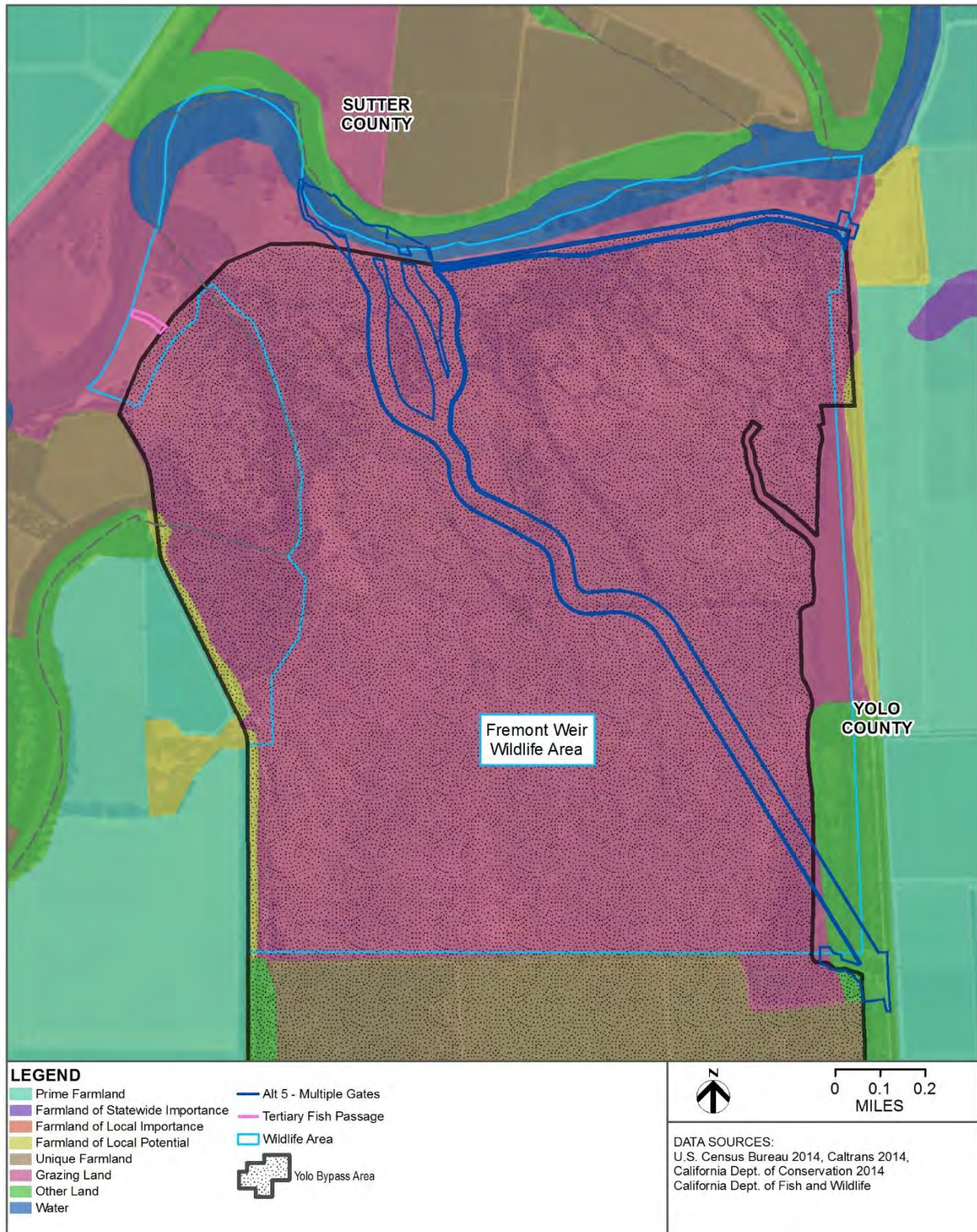
Similar to Alternative 1, implementation of Alternative 5 could affect farmland within the entire Yolo Bypass through increased periods of inundation, also known as effects from operations. The longer fields remain wet, the later planting can begin. If planting is delayed beyond June 1 (the last date to begin planting, on average, as described in Section 3.2 of Appendix J1), the lands may not be planted that year. Figures 11-5 and 11-6 help characterize the inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time. Farmland in the Yolo Bypass represents nearly seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance.

For Alternative 5, the gated notch at Fremont Weir would not allow inundation flows to enter the Yolo Bypass after March 15. The TUFLOW model was used to estimate the changes to the last day lands would be wet, referred to as the last day wet, under Alternative 5 compared to existing conditions. Figure 11-14 presents the difference in the last wet day between Alternative 5 and existing conditions. The figure shows conditions in 2002 because that year had the greatest change in last day wet of all years modeled (1997 through 2012).

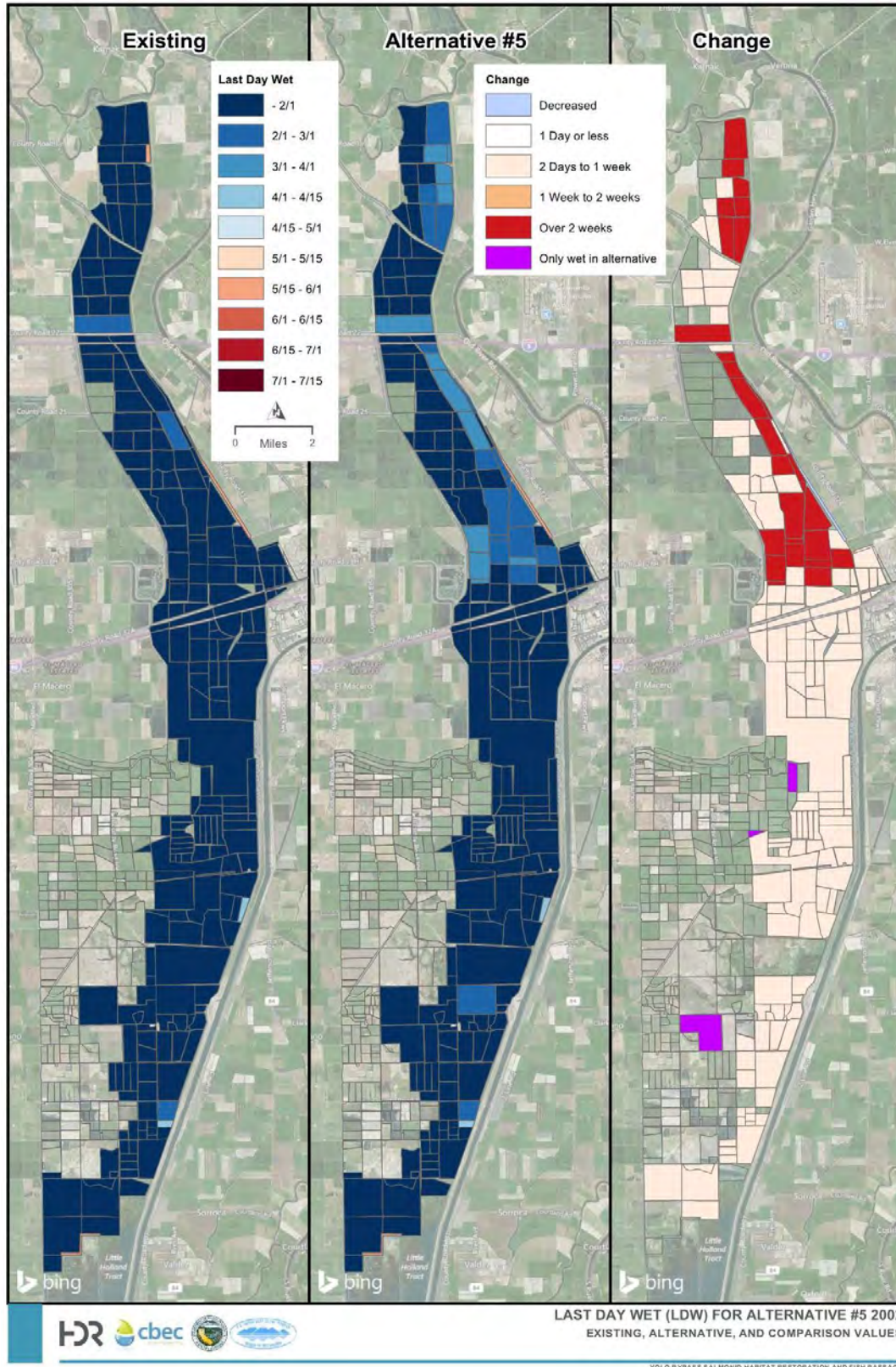
In an average year, the last date to plant is June 1 (see Section 3.2 of Appendix J1). After June 1, farmers would not plant crops. The additional wet period that would be experienced by most of the lands in the bypass is not anticipated to cause a delay that would result in planting dates beyond June 1 or a change in FMMP land use classifications. There would still be potential yield losses, however, because a March 15 end date could delay planting relative to existing conditions, as shown in Figure 11-14. These effects are discussed in Chapter 16, *Socioeconomics*. While project implementation could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance because of increased periods of inundation, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

#### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 5 would be **less than significant** because Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not be converted to nonagricultural uses by alternative construction or increased periods of inundation.



**Figure 11-13. Areas of Land Use Impacts under Alternative 5**



**Figure 11-14. Greatest Change in Last Day Wet of all Years Modeled for Fields in the Yolo Bypass under Alternative 5 Compared to Existing Conditions (2002)**

### 11.3.3.6.3 Tule Canal Floodplain Improvements (Program Level)

As described in Section 2.8.1.7, Alternative 5 would include floodplain improvements along Tule Canal, just north of Interstate 80. These improvements would not be constructed at the same time as the remaining facilities. They are included at a program level of detail to consider all the potential impacts and benefits of Alternative 5. Subsequent consideration of environmental impacts would be necessary before construction could begin.

*Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect*

Program level improvements to the Tule Canal Floodplain (a series of secondary channels that connect to Tule Canal, north of Interstate 80) would not divide a community because there is no community present to be divided and should not conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. These improvements may have a potential effect on a very small portion of agricultural land, which would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

#### *CEQA Conclusion*

Impacts to land use resulting from the program level improvements to the Tule Canal Floodplain associated with Alternative 5 would be **less than significant** because actions would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

*Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses*

Program level improvements to the Tule Canal Floodplain associated with Alternative 5 would be located on lands largely functioning as wetlands or designated as fallowed fields. However, a small portion of the area is designated Unique Farmland, which could be affected by increased inundation. Increased inundation from the secondary channels is not expected to result in changes to land use classifications or conversion of agricultural lands to nonagricultural uses.

#### *CEQA Conclusion*

Impacts to land use resulting from the program level improvements to the Tule Canal Floodplain associated with Alternative 5 would be **less than significant** because Unique Farmland would not be converted to nonagricultural uses.

### 11.3.3.7 Alternative 6: West Side Large Gated Notch

Alternative 6, West Side Large Gated Notch, is a large notch in the western location that would allow flows up to 12,000 cfs. It was designed with the goal of entraining more fish while allowing more flow into the bypass when the Sacramento River is at lower elevations. See Section 2.9 for more details on the alternative features.

**11.3.3.7.1 Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect**

Impacts to land use from the implementation of Alternative 6 would be similar to those discussed for Alternative 1. Alternative 6 actions would not divide a community as there are no communities present to be divided and should not conflict with land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. Agricultural lands would remain designated for agricultural use, but some fields could be fallowed or shifted to alternative crops, which could occur under existing conditions.

*CEQA Conclusion*

Impacts to land use resulting from implementation of Alternative 6 would be **less than significant** because Alternative 6 actions would be consistent with relevant existing land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect and would not occur near a community.

**11.3.3.7.2 Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses**

Construction of Alternative 6 would permanently affect approximately 70 acres of agricultural land (grazing lands and Farmlands of Local Potential) within the project footprint and temporarily affect an additional 14 acres. Permanently affected lands would represent a loss in grazing land where it would no longer be feasible due to the construction of project structures. These lands are mainly grazing land (69 acres). There would be no permanent or temporary conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Figure 11-15 shows the underlying land use designations in the areas where construction impacts from Alternative 6 would occur. Most of the grazing lands that would be affected are in the FWWA and not typically used for grazing.

Similar to Alternative 1, potential increases in inundation associated with the implementation of Alternative 6 could affect additional farmland within the Yolo Bypass. Agricultural lands in the Yolo Bypass represent nearly seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. The longer fields remain wet, the later planting can begin. If planting is delayed beyond June 1 (the last date to begin planting, on average, as described in Section 3.2 of Appendix J1), the lands may not be planted that year. Figures 11-5 and 11-6 help characterize the inundation patterns by showing the number of occurrences when areas greater than 10,000 and 20,000 acres would be wet for extended periods of time.

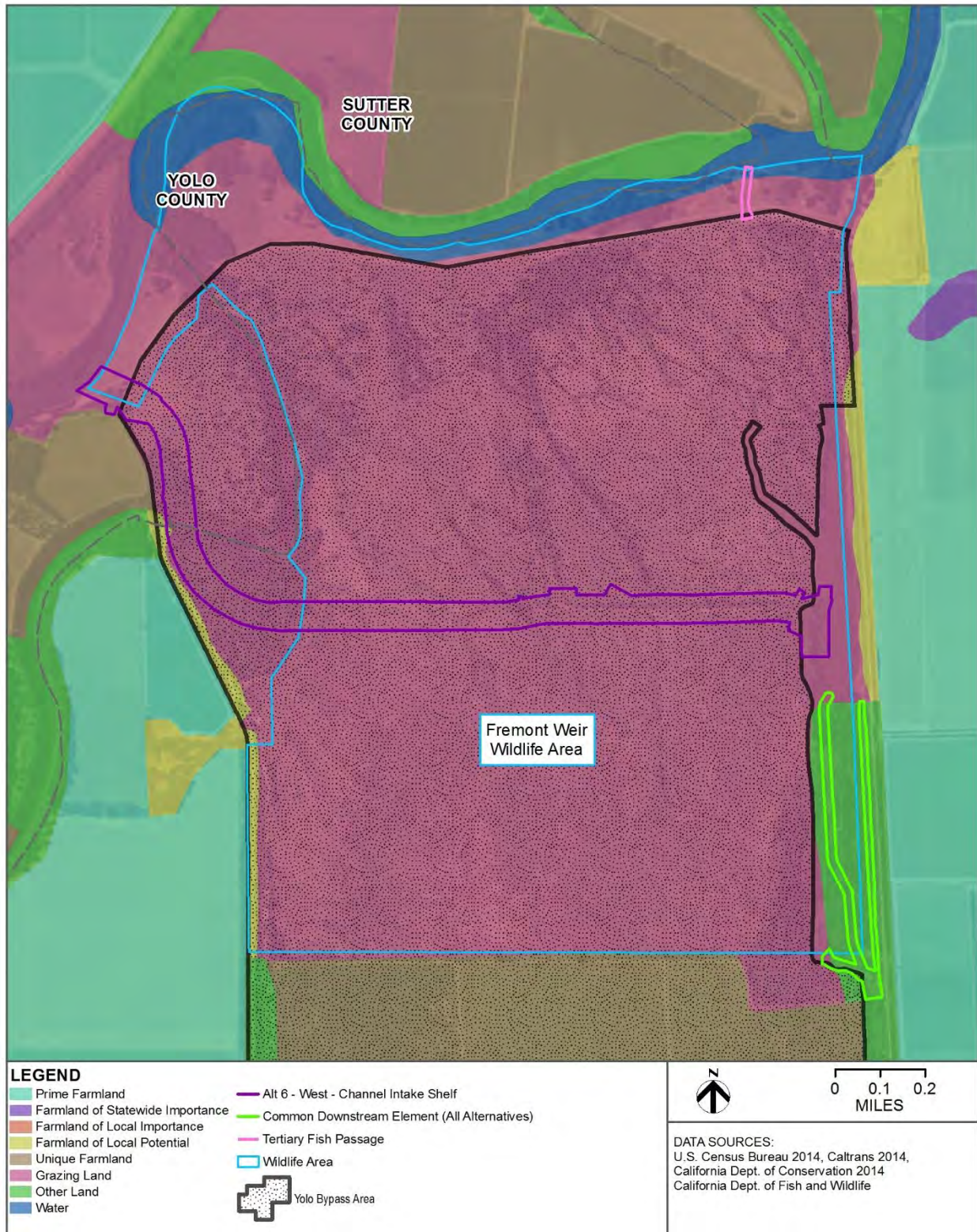


Figure 11-15. Areas of Land Use Impacts under Alternative 6

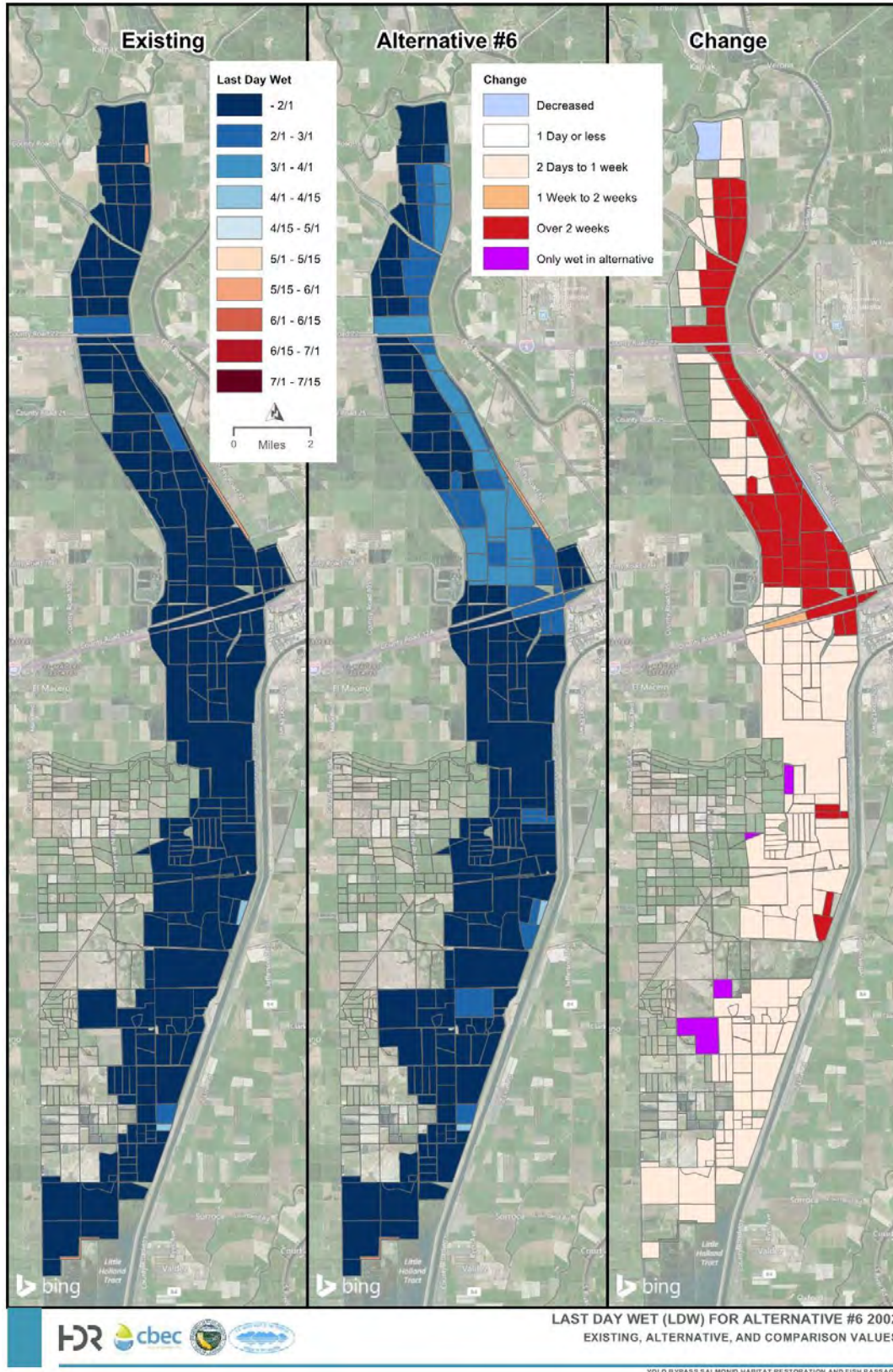


The TUFLOW model was used to estimate the changes to the last day lands would remain wet, referred to as the last day wet, under Alternative 6 compared to existing conditions. Figure 11-16 presents the difference in the last wet day between Alternative 6 and existing conditions. The figure shows conditions in 2002 because that year had the greatest change in last day wet of all years modeled (1997 through 2012).

In an average year, the last date to plant is June 1 (see Section 3.2 of Appendix J1). After June 1, farmers would choose not to plant crops. The additional wet period experienced by most of the lands in the bypass is not anticipated to cause a delay that would result in planting dates beyond June 1 or change FMMP land use classifications. There are still potential yield losses, however, because the proposed date (March 15) for the end of inundation flow releases at Fremont Weir could delay planting relative to existing conditions, as shown in Figure 11-16. These effects are discussed in Chapter 16, *Socioeconomics*. While implementation of Alternative 6 could temporarily affect up to seven percent of Yolo County's Prime Farmland, Unique Farmland, and Farmland of Statewide Importance because of increased periods of inundation, the lands would not be permanently taken out of production although it is possible that farms might shift to alternative crops or experience changes in agricultural yield (see Chapter 16, *Socioeconomics*). There would not be any conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural use or incompatible use because of increased periods of inundation.

#### *CEQA Conclusion*

Impacts to agricultural land use resulting from implementation of Alternative 6 would be **less than significant** because Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would not convert to nonagricultural uses by alternative construction or increased periods of inundation.



**Figure 11-16. Greatest Change in Last Day Wet of all Years Modeled for Fields in the Yolo Bypass under Alternative 6 Compared to Existing Conditions (2002)**

**11.3.4 Summary of Impacts**

Table 11-6 provides a summary of the identified impacts to land use and agricultural resources within the Project area.

**Table 11-6. Summary of Impacts and Mitigation Measures – Land Use and Agricultural Resources**

Impact	Alternative	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact AGR-1: Physically divide a community or conflict with a relevant land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect	No Action	NI	---	NI
	All Action Alternatives	LTS	---	LTS
Impact AGR-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, which may also be protected under the Williamson Act or other conservation programs, to nonagricultural or incompatible uses	No Action	NI	---	NI
	1, 2, 3, 5 (Project), 5 (Program), 6	LTS	---	LTS
	4	S	MM-AGR-1	SU

Key: LTS = less than significant; NI = no impact; S = significant; SU = significant and unavoidable

**11.4 Cumulative Impacts Analysis**

This section describes the cumulative impacts analysis for land use. Section 3.3, *Cumulative Impacts*, presents an overview of the cumulative impacts analysis, including the methodology and the projects, plans, and programs considered in the cumulative effects analysis.

**11.4.1 Methodology**

This evaluation of cumulative impacts for land use considers the effects of the Project and how they may combine with the effects of other past, present, and future projects or actions to create significant impacts on specific resources. The area of analysis for these cumulative impacts includes the area surrounding, and including, the Yolo Bypass. The timeframe for this cumulative analysis includes the past, present, and probable future projects producing related or cumulative impacts that have been identified in the area of analysis.

This cumulative impact analysis utilizes the project analysis approach described in detail in Section 3.3, *Cumulative Impacts*.

Projects that would require or result in construction activities, or other actions such as increased flooding, within the Project area have the potential to impact land use and agricultural resources in combination with the Project alternatives. These projects are listed below:

- California EcoRestore projects
  - Agricultural Road Crossing #4 Fish Passage Improvement Project
  - Cache Slough Area Restoration – Prospect Island
  - Fremont Weir Adult Fish Passage Modification Project
  - Lisbon Weir Modification Project
  - Lower Putah Creek Realignment Project
  - Prospect Island Tidal Habitat Restoration Project
  - Tule Red Tidal Marsh Restoration Project
  - Wallace Weir Fish Rescue Facility Project
- California WaterFix
- Central Valley Flood Protection Plan
- Liberty Island Conservation Bank
- Lower Elkhorn Basin Levee Setback Project
- Lower Yolo Restoration Project
- Sacramento River Bank Protection Project
- Sacramento River General Reevaluation Report

### 11.4.2 Cumulative Impacts

Several related and reasonably foreseeable projects and actions may result in impacts to land use and agricultural resources in the Project area.

Specifically, the Central Valley Flood Protection Plan, which includes the Sacramento River Basin-Wide Feasibility Study, Lower Elkhorn Basin Levee Setback Project, Sacramento River Bank Protection Project, and Sacramento River General Reevaluation Report, may result in construction in or adjacent to the Yolo Bypass. Construction activities could be associated with levee setbacks, removal, and improvements, expansion of Fremont Weir and the Yolo Bypass, construction of new bypass channels, and the construction of levees. Construction activities associated with the cumulative projects could affect the amount of agricultural lands taken out of production around the same period as the Project alternatives. However, impacts to agricultural lands from the actions included in the Sacramento River General Reevaluation Report are unknown but expected to be compatible with the project.

The Liberty Island Conservation Bank proposes to breach the northernmost east/west levee, which could permanently flood an additional 1,000 acres. The Lower Yolo Restoration Project is intended to restore tidal flux to 1,100 acres of existing pasture land. Additionally, EcoRestore Projects in or near the Yolo Bypass, including Agricultural Road Crossing #4, Lisbon Weir

Modification Project, and Lower Putah Creek Realignment Project, could affect small areas of agricultural land. These actions have the potential to change land use in these parts of the bypass but would not likely change land use designations.

Neither the Project nor cumulative projects are expected to affect land use by physically dividing a community or conflicting with a relevant land use plan, policy, or regulation. Regarding construction-related impacts or the location of new or relocated structures, the cumulative projects would be expected to implement proper mitigation measures, when necessary, to prevent significant cumulative impacts such as the conversion of agricultural lands to nonagricultural use or the reduction of crop yields. It is also assumed that construction-related impacts to agricultural lands would be temporary and would not result in the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to nonagricultural uses or substantial reductions to crop yields. Therefore, the Project alternatives' incremental contributions to the cumulative effects associated with Prime Farmland, Unique Farmland, and Farmland of Statewide Importance **would not result in significant cumulative effects.**

## 11.5 References

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