ARVIN-EDISON WATER STORAGE DISTRICT

2023 LAND USE SURVEY

June 28, 2024

Prepared by Engineering Technician Jose Santana

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Introduction

This report summarizes the completed Spring and Fall 2023 Land Use Surveys for the Arvin-Edison Water Storage District (AEWSD or District). The District's Engineering Department collects both Spring (March through May) and Fall (September through November) land use data via field observations along with drone aerial imagery in areas with difficult access. The data is entered into a geographic information system (GIS) with aerial photography and parcel data to produce maps and summarize the data.

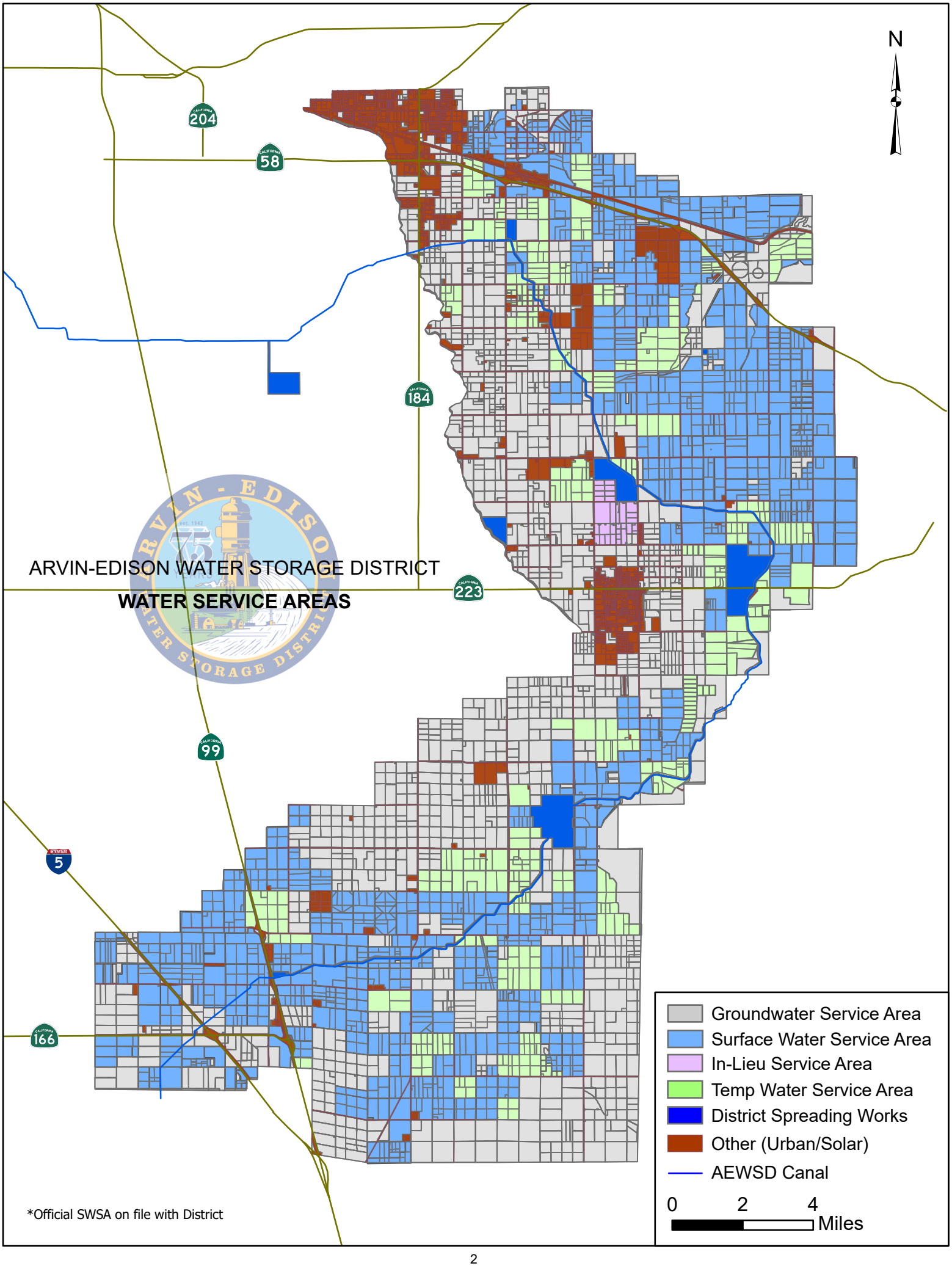
Land Use Surveys are required by the District's Repayment Water Service Contract with the Bureau of Reclamation (USBR). Section 31 (a) on page 65 of the Repayment Contract states, "The Contractor shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Contract, including: the Contractor's financial transactions, water supply data, and Project land and right-of-way agreements; **the water users' land-use (crop census)**, land ownership, land-leasing and water use data; and other matters that the Contracting Officer may require. Reports thereon shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require…"

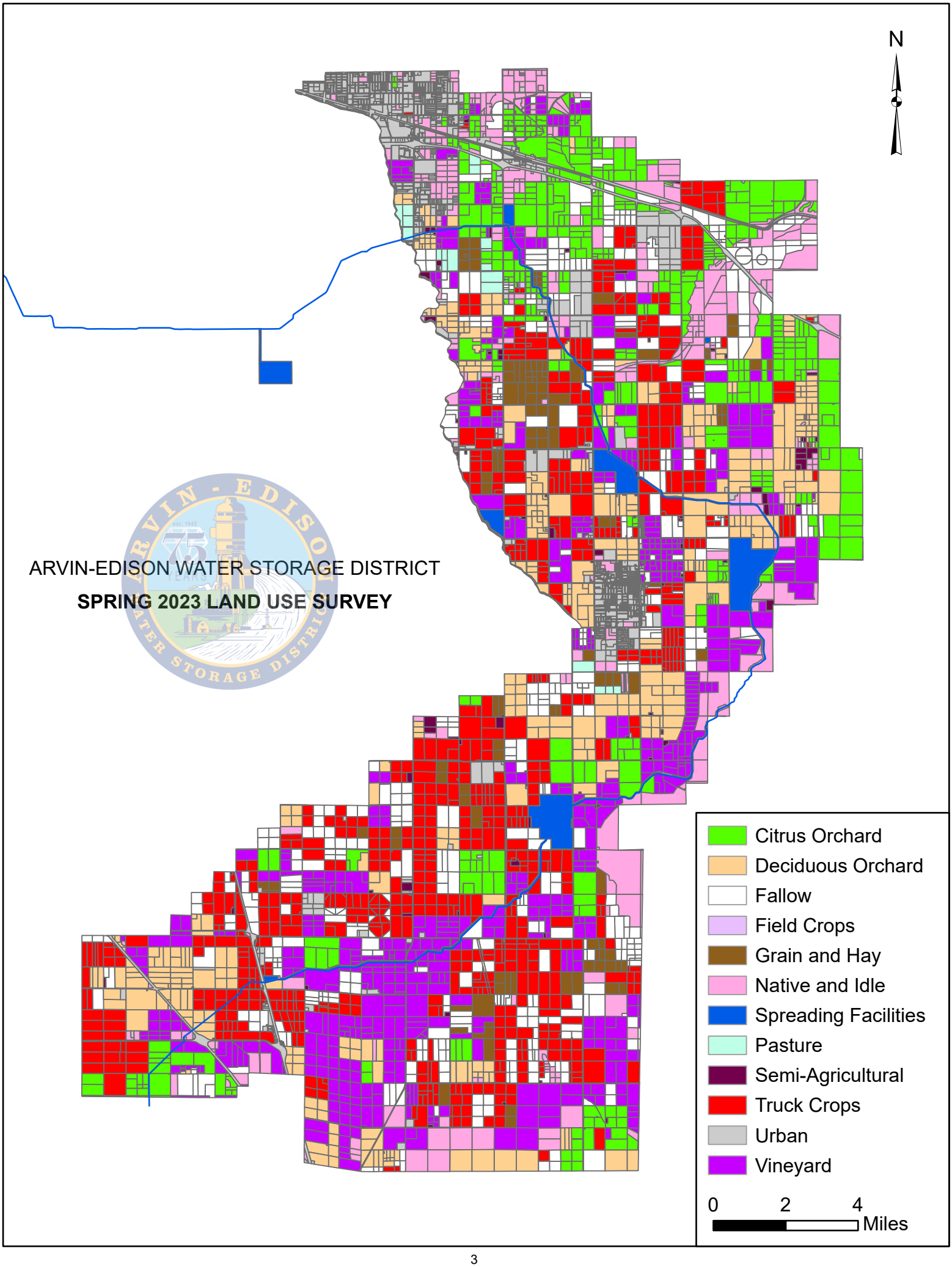
Additional uses of the Land Use Survey are utilized to meet DWR requirements, provide support data to JMLord Inc. for the annual "Assessment of Reasonable Water Requirements" for the entire District (SWSA and GWSA), and for inclusion into the District's Water Management Plan (another USBR requirement). This information is also provided, upon request, to water users/producers within the District for their personal use as well as the Kern County Water Agency for their county-wide summaries. In addition, District staff and its consultants use this report for various purposes, including but not limited to, annual Hydrologic Balance and SGMA compliance/Groundwater Management as well as Water Use Reviews and Lateral Prorate Studies (if necessary).

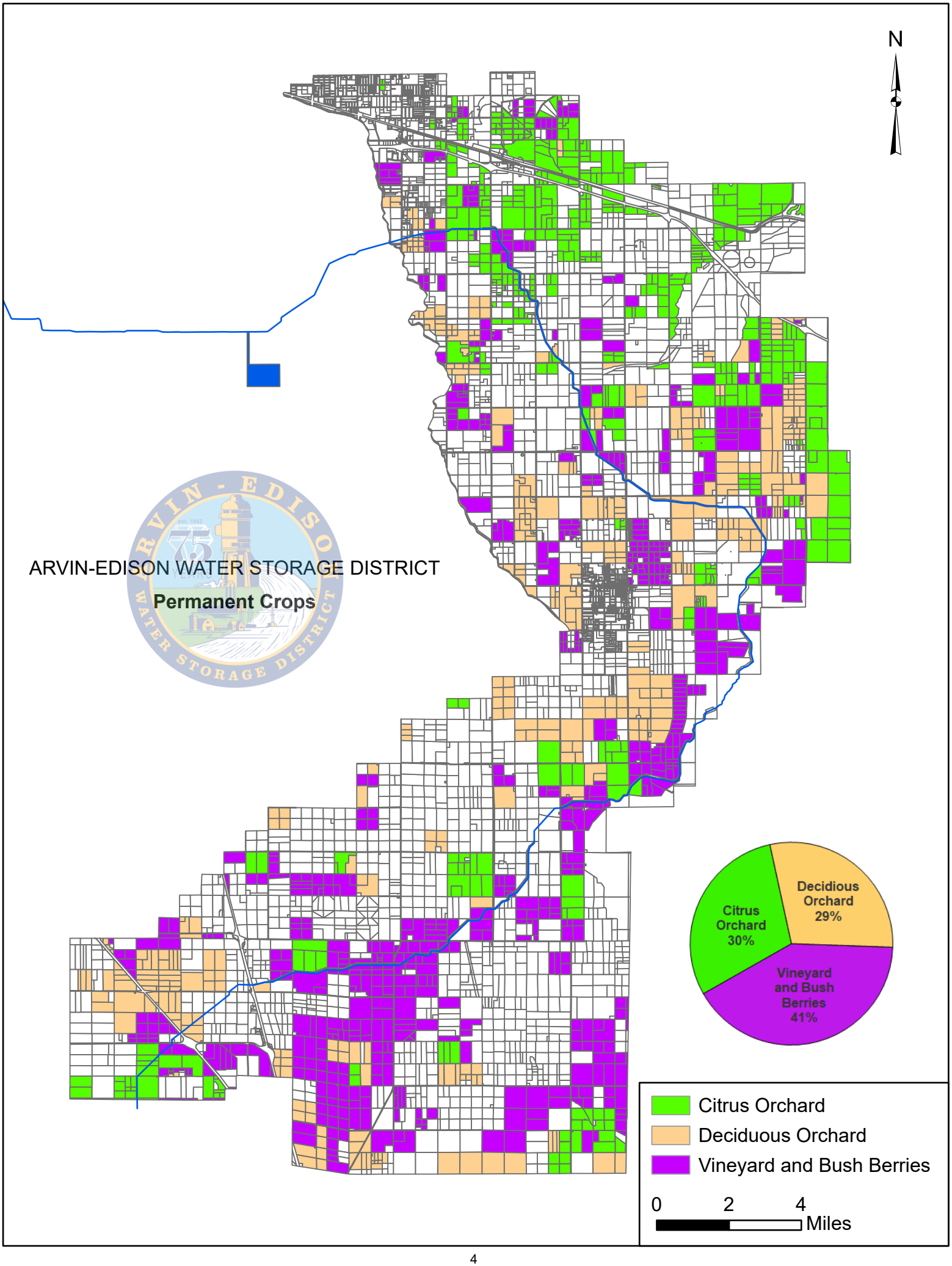
Land Use Classes are categorized according to the State of California's Department of Water Resources (DWR) "Standard Land Use Legend" as updated in December 2022 (enclosed within). The DWR Standard Land Use Legend categorizes land use into four (4) major classes: Agricultural, Semi-Agricultural, Urban, and Native. These classes are further subdivided by land use. Agricultural lands are subdivided by crops and irrigation methods.

District boundaries encompass 131,660 acres of predominantly agricultural lands and contain two main service areas. One main area is the Surface Water Service Area (SWSA), which consists of 51,421 acres (39% of entire District) of lands contracted with the District to receive surface water and/or recovered groundwater from previously recharged ("banked") surface water. The other main area is the Groundwater Service Area (GWSA), which consists of 67,802 acres (52% of entire District) of irrigable lands served by privately owned farm wells. In 2023, total actual irrigated lands within the GWSA were 48,336 acres.

Within the GWSA there are 13,885 acres (11% of entire District) with Temporary Water Contracts and 760 acres (less that 1% of entire District) with In-Lieu Water Contracts. Both Temporary and In-Lieu Water Contracts allow the District to supply surface water to those groundwater service areas during wet seasons when the water is available. The remaining lands outside the SWSA and GWSA consist of District owned groundwater recharge basins (approximately 2,000 acres), urban areas, solar farms, and small acreage areas.

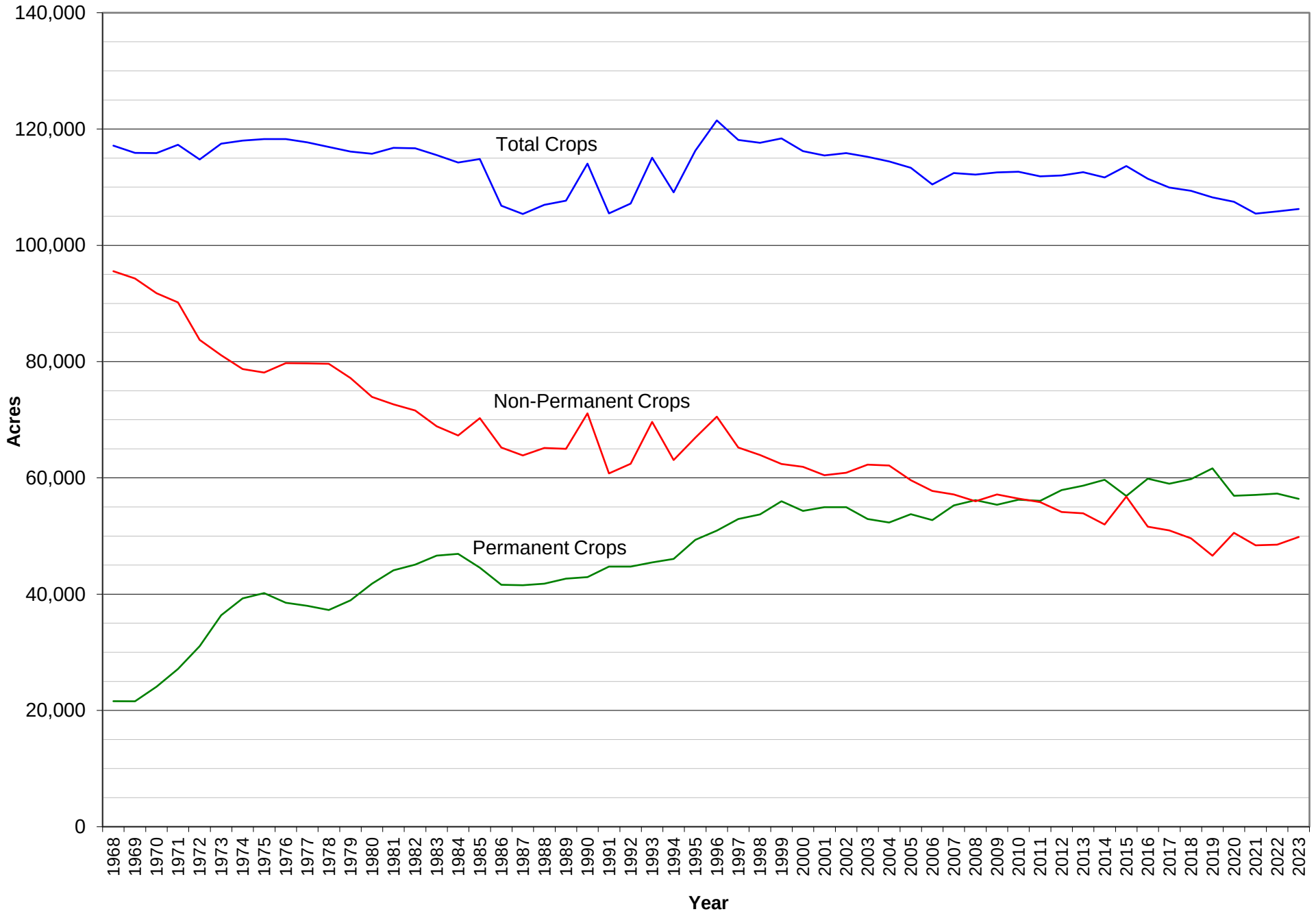

N
204
58
184
223
99
5
166
ARVIN-EDISON WATER STORAGE DISTRICT
WATER SERVICE AREAS
Groundwater Service Area
Surface Water Service Area
In-Lieu Service Area
Temp Water Service Area
District Spreading Works
Other (Urban/Solar)
AEWSD Canal
0
2
4
Miles
*Official SWSA on file with District


N
ARVIN-EDISON WATER STORAGE DISTRICT
SPRING 2023 LAND USE SURVEY
Citrus Orchard
Deciduous Orchard
Fallow
Field Crops
Grain and Hay
Native and Idle
Spreading Facilities
Pasture
Semi-Agricultural
Truck Crops
Urban
Vineyard
0
2
4
Miles


N
ARVIN-EDISON WATER STORAGE DISTRICT
Permanent Crops
Decidious Orchard 29%
Citrus Orchard 30%
Vineyard and Bush Berries 41%
Citrus Orchard
Deciduous Orchard
Vineyard and Bush Berries
0
2
4
Miles

ARVIN-EDISON WATER STORAGE DISTRICT

PERMANENT VS. NON-PERMANENT CROPPING PATTERNS



ARVIN-EDISON WATER STORAGE DISTRICT

5 YEAR CROP SURVEY SUMMARY (2019 - 2023)

VALUES IN ACRES

	2019			2020			2021			2022			2023		
Crop	**Spring**	**Fall**	**Total**	**Spring**	**Fall**	**Total**	**Spring**	**Fall**	**Total**	**Spring**	**Fall**	**Total**	**Spring**	**Fall**	**Total**
Alfalfa/Hay[2]	3,036	324	3,360	3,702	1,404	5,106	2,560	1,325	3,885	2,618	597	3,215	3,886	1,073	4,959
Almonds	10,540	308	10,849	10,945	484	11,429	11,301	39	11,339	11,138	224	11,362	10,318	147	10,465
Apples	13	0	13	13	0	13	13	0	13	13	0	13	0	0	0
Apricots	70	0	70	10	0	10	10	0	10	10	0	10	0	0	0
Beans (Green)	698	0	698	432	0	432	40	0	40	0	0	0	0	0	0
Carrots	4,024	9,107	13,132	4,073	8970	13,042	4,005	10704	14,709	4,028	8,940	12,968	3,485	8,628	12,113
Citrus[3]	16,371	292	16,663	16,900	236	17,136	16,773	739	17,511	16,771	659	17,430	16,800	300	17,100
Cole Crops	321	182	503	79	789	867	102	0	102	0	0	0	123	0	123
Cotton	220	40	260	82	0	82	0	0	0	0	0	0	0	0	0
Corn (Field)	0	0	0	106	0	106	53	0	53	36	165	201	13	20	32
Irrigated Pasture[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lettuce	175	347	522	382	19	401	169	853	1,022	179	288	467	122	114	237
Melons	678	18	697	419	0	419	563	0	563	352	41	393	438	0	438
Misc. Deciduous[5]	2,382	0	2,382	2,548	63	2,611	2,606	57	2,662	2,889	0	2,889	2,694	513	3,207
Misc. Truck Crops[6]	4,083	2,135	6,218	3,464	1,468	4,932	2,803	1,455	4,258	4,130	1,669	5,798	3,419	2,003	5,422
Misc. Field Crops[7]	359	344	703	482	222	704	216	18	234	0	0	0	0	0	0
Nursery	86	0	86	60	0	60	60	0	60	42	0	42	43	26	69
Onions	3,386	473	3,859	3,576	626	4,202	2,786	669	3,455	3,472	985	4,457	4,265	97	4,363
Peaches/Nectarines	800	0	800	796	0	796	739	19	758	771	0	771	951	0	951
Pears	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peppers	1,475	0	1,475	1,298	0	1,298	1,489	0	1,489	1,096	0	1,096	1,183	0	1,183
Pistachios	1,436	0	1,436	1,482	362	1,844	1,716	137	1,853	1,845	273	2,118	2,382	0	2,382
Plums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potatoes[8]	6,708	807	7,514	9,288	693	9,981	9,558	1,448	11,006	9,476	1,959	11,435	8,312	2,239	10,551
Safflower	50	0	50	481	0	481	79	0	79	0	0	0	0	0	0
Small Grains[9]	2,096	295	2,391	1,501	0	1,501	920	194	1,114	953	295	1,248	1,167	0	1,167
Sugarbeets[10]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tomatoes	2,342	0	2,342	3,192	0	3,192	4,683	0	4,683	5,573	412	5,984	6,613	146	6,759
Vineyard	29,445	596	30,041	23,718	1,266	24,984	23,624	1,401	25,025	23,343	653	23,996	22,749	541	23,290
Walnuts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total[1]	90,795	15,270	106,065	89,026	16,600	105,627	86,864	19,058	105,922	88,733	17,161	105,894	88,963	15,848	104,810

Permanent crops include acreage for young crops in total count.

[1]Includes non-irrigated crops. Does not include Native classes.

[2]Includes: Alfalfa, Misc. Grains and Hay, Misc. Grains and Hay, and Mixed Grains and Hay.

[3]Includes: Grapefruit, Jojoba, Lemons, Misc. Citrus, Olives and Oranges.

[4]Includes: Mixed Pasture and Turf Farms.

[5]Includes: Cherries, Misc. Deciduous, and Mixed Deciduous.

[6]Includes: Asian Leafy Greens, Asparagus, Broccoli, Blueberries, Bush Berries, Cabbage, Cauliflower, Misc. Truck Crops, Mixed Truck Crops, Spinach,Celery, Strawberries, and Sweet Potatoes.

[7]Includes: Grain Sorugum, Hemp, Misc. Field, Sunflowers, and Sudan.

[8]Does not include Sweet Potatoes.

[9]Includes: Barley, Oats, and Wheat.

[10]Classified as Misc. Truck Crop.

ARVIN-EDISON WATER STORAGE DISTRICT

10 YEAR SUMMARY OF SPRING LAND USE (2014 - 2023)

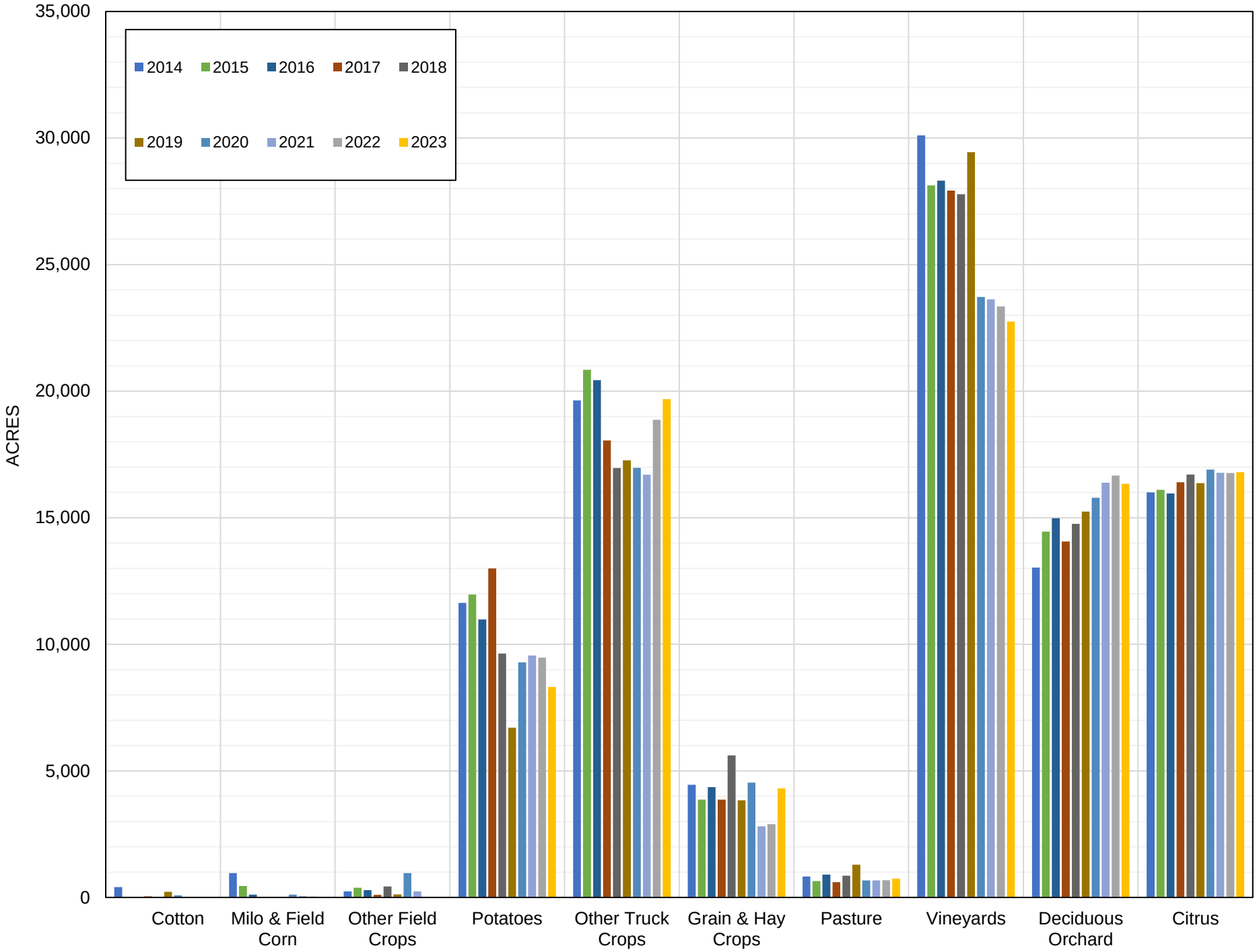
Values in Acres

LAND USE *(1) *(2) *(3)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Field Crops										
Cotton	409	0	0	40	0	220	82	0	0	0
Milo & Field Corn	962	450	111	16	0	0	106	53	36	13
Other Field Crops	240	381	290	106	431	122	964	237	0	0
Hemp	-	-	-	-	-	287	0	58	-	-
Truck Crops										
Potatoes	11,632	11,966	10,981	12,996	9,633	6,708	9,288	9,558	9,476	8,312
Other Truck Crops	19,640	20,842	20,434	18,054	16,966	17,268	16,973	16,699	18,871	19,691
Grain & Hay Crops	4,449	3,862	4,362	3863	5,613	3,838	4,533	2,807	2,890	4,308
Pasture	829	647	904	605	859	1,294	669	673	681	745
Vineyards	30,109	28,128	28,314	27,923	27,781	29,445	23,718	23,624	23,343	22,749
Deciduous Orchard	13,029	14,455	14,978	14,064	14,759	15,241	15,793	16,384	16,665	16,345
Citrus	15,999	16,103	15,961	16,403	16,706	16,371	16,900	16,773	16,771	16,801
Subtotal	97,298	96,833	96,334	94,071	92,748	90,795	89,026	86,864	88,733	88,963
Fallow *(4)	13,909	16,308	15,007	15,754	16,115	17,464	18,455	18,301	16,569	16,765
Total Irrigated Acres	111,207	113,141	111,341	109,824	108,863	108,259	107,481	105,165	105,302	105,729
Semi-Incidental To Agricultural	381	256	326	560	726	743	796	826	830	836
Urban and Vacant	10,313	9,377	10,401	10,515	10,562	10,219	10,620	10,649	10,487	10,501
Non-Irrigated Crops	449	383	121	124	0	0	0	0	0	0
Abandoned Orchards/Vineyards	0	0	0	0	0	0	0	0	0	0
Idle Land *(5)	1,112	1,832	1,530	2,211	3,174	4,283	4,401	6,604	6,127	6,115
Native Classes	8,198	6,671	7,941	8,426	8,335	8,155	8,362	8,416	8,914	8,480
Total Non-Irrigated Acres	20,453	18,519	20,319	21,836	22,797	23,401	24,179	26,495	26,358	25,931
Total District Acreage	131,660	131,660	131,660	131,660	131,660	131,660	131,660	131,660	131,660	131,660

*(1) Standard Land Use Legend as prepared by DWR, for 2022-2023 the December 2022 Legend was used. 2016 Legend used for 2016-2021
*(2) Land Use is surveyed during the Spring of each year
*(3) Land Use survey completed in August
*(4) Land is tilled at time of survey but current crop not identified
*(5) Land cropped within the past three years but not tilled at time of survey

ARVIN-EDISON WATER STORAGE DISTRICT

10 YEAR SUMMARY OF SPRING LAND USE (2014 - 2023)



ARVIN-EDISON WATER STORAGE DISTRICT

2023 LAND USE TABLES WITH CROPS AND ACRES

VALUES IN ACRES

2023 Spring Land Use with Crops			
LEGEND	SWSA*	GWSA	Total
Oranges	8,564	3,505	12,069
Vineyard	7,329	9,882	17,211
Fallow	6,249	10,517	16,765
Tomatoes	3,056	3,557	6,613
Almonds	2,711	5,100	7,811
Vineyard-Young	2,658	2,880	5,538
Potatoes	2,506	5,805	8,312
Idle	1,885	4,230	6,115
Oranges-Young	1,757	931	2,688
Onions	1,629	2,636	4,265
Carrots	1,635	1,850	3,485
Almonds-Young	1,177	1,330	2,507
Cherries	1,076	612	1,689
Urban Industrial - Solar	886	704	1,590
Cherries-Young	848	121	969
Peppers	836	347	1,183
Citrus-Misc.	760	954	1,715
Urban Vacant-Roads	757	3,005	3,762
Pistachios-Young	573	574	1,147
Grains & Hay	531	1,520	2,051
Sweet Potatoes	529	269	798
Pistachios	518	717	1,235
Native Grasses	499	3,919	4,418
Peaches/Nectarines	317	230	548
Peaches/Nectarines-Young	214	189	403
Melons	199	239	438
Blueberries	175	331	506
Citrus-Misc.-Young	167	1	167
Truck Crops-Misc.	159	647	806
Mixed Truck Crops	146	658	805
Mixed grain and hay	134	957	1,091
Farmsteads	123	354	476
Wheat	111	939	1,050
Water Surface	89	2,694	2,783
Lemons	86	0	86
Urban Industrial	80	702	782
Urban Residential	60	3,018	3,078
Broccoli	57	0	57
Native Grass/Shrubs	49	1,220	1,269
Urban Commercial	49	446	495
Cauliflower	39	0	39
Mixed Decidous	28	0	29
Urban Industrial	26	545	572
Feedlots	26	330	357
Urban Industrial	23	45	68
Urban Industrial	15	29	45
Asparagus	15	0	15
Nursery Crops	14	29	43
Asian Leafy Greens	11	84	95
Urban Industrial	14	13	27
Bush Berries	8	0	8
Olives	5	70	76
Strawberries	4	0	4
Urban Industrial	4	14	17
Spinach	1	136	138
Urban Industrial	1	9	10
Cole Crops (mixed)	1	122	123
Urban Commercial	1	44	45
Landowner Well	0	3	3
Alfalfa	0	745	745
Cabbage	0	149	149
Lettuce	0	122	122
Barley	0	116	116
Corn	0	13	13
Urban Commercial	0	11	11
Native Barren	0	9	9
Deciduous-Misc.	0	8	8
Total	**51,421**	**80,239**	**131,660**

Fall Crops**	
Legend	Total
Carrots	8,628
Potatoes	2,239
Mixed Truck Crops	1,000
Grains & Hay	895
Cherries-Young	513
Truck Crops-Misc.	436
Vineyard	424
Sweet Potatoes	329
Oranges-Young	300
Mixed grain and hay	178
Almonds-Young	147
Tomatoes	146
Vineyard-Young	117
Lettuce	114
Onions	97
Asian Leafy Greens	81
Celery	79
Cabbage	78
Nursery Crops	26
Corn	20
Total	**15,848**

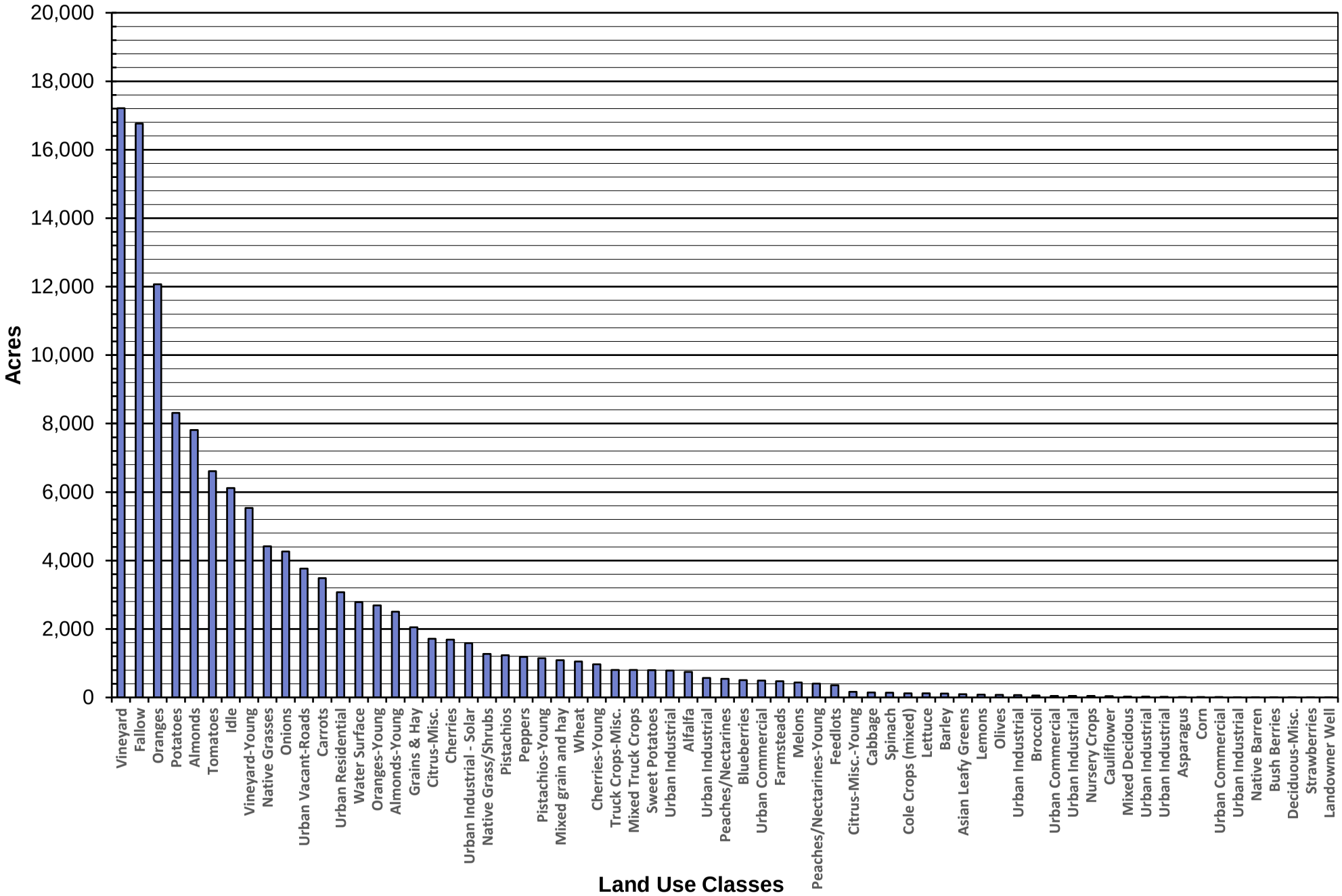
*Crop is sorted by descending SWSA
**Crops grown in the Fall in addition to Spring Crops

SWSA - Surface Water Service Area
GWSA - Groundwater Service Area

To see total descending order for District, proceed to the graph on page 10.

ARVIN-EDISON WATER STORAGE DISTRICT

SPRING 2023 LAND USE SURVEY

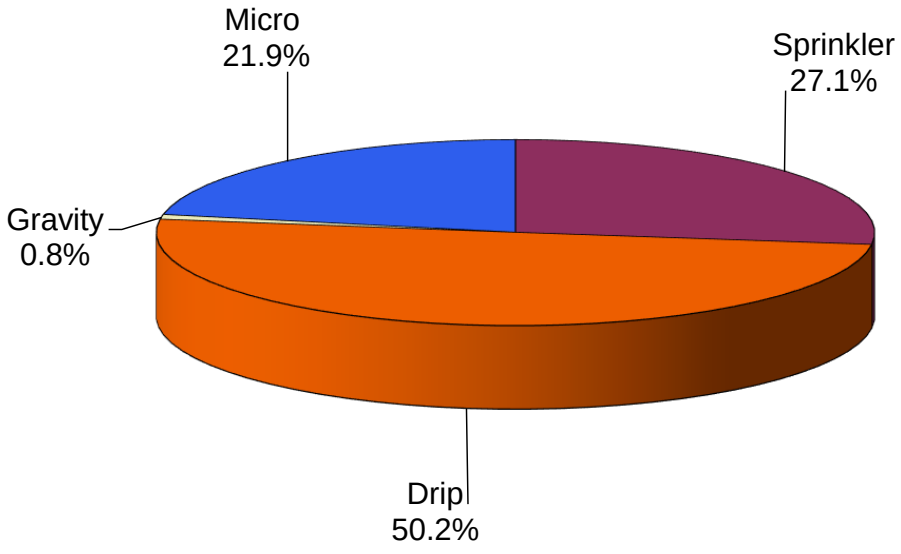


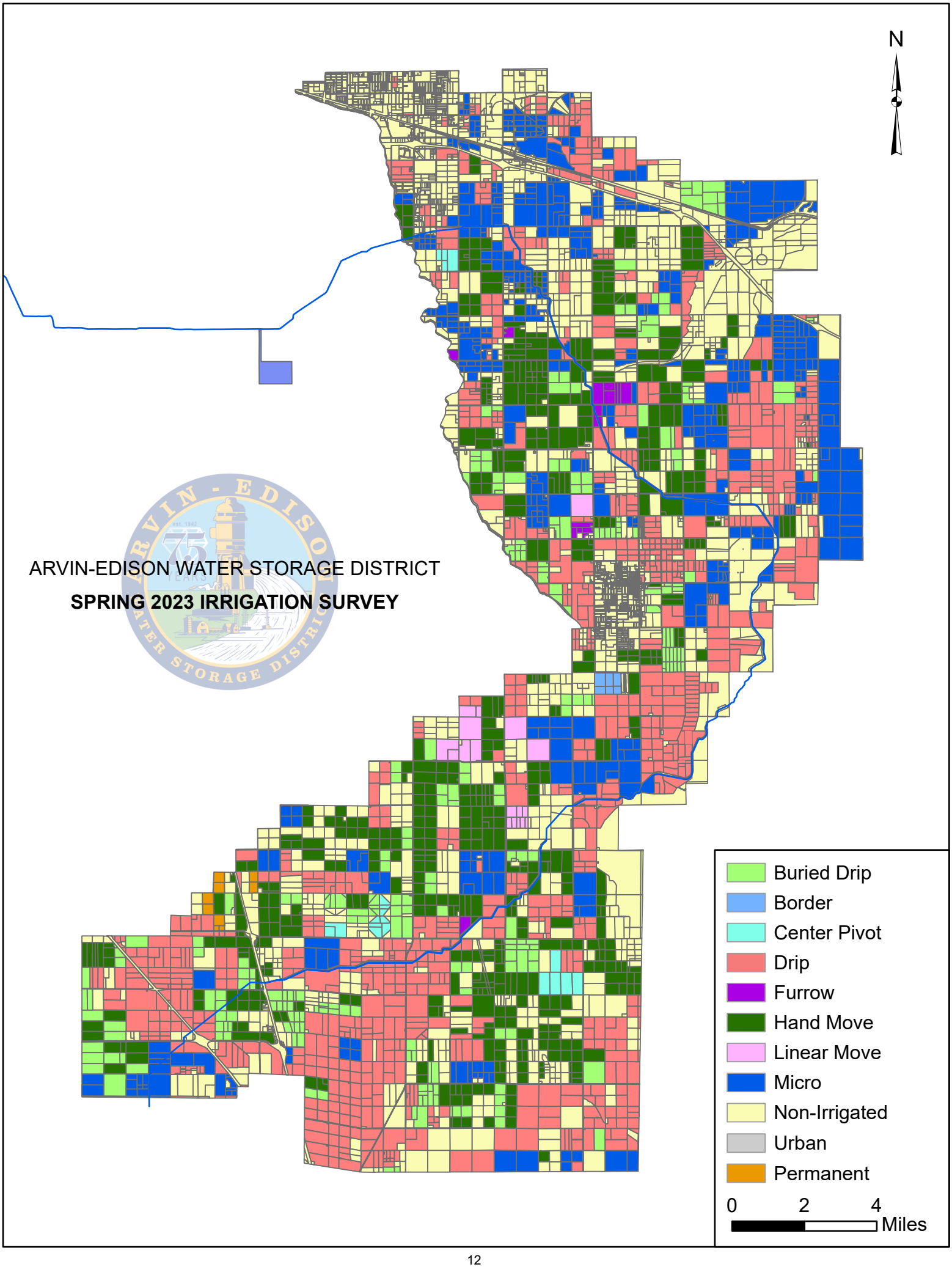
ARVIN-EDISON WATER STORAGE DISTRICT

SPRING 2023 IRRIGATION SUMMARY

Method	Acres	%
Sprinkler	24,087	27.1
Drip	44,648	50.2
Gravity	729	0.8
Micro	19,500	21.9
Subtotal	88,963	100.0
Non-Irrigated	42,697	
Total	131,660	

2023 IRRIGATION SYSTEMS PERCENTAGE




N
ARVIN-EDISON WATER STORAGE DISTRICT
SPRING 2023 IRRIGATION SURVEY
Buried Drip
Border
Center Pivot
Drip
Furrow
Hand Move
Linear Move
Micro
Non-Irrigated
Urban
Permanent
0
2
4
Miles

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

MODIFIED STANDARD
LAND USE LEGEND

Land and Water Use Section
Water Use and Efficiency Branch
Division of Statewide Integrated Water Management

December 2022

STANDARD LAND USE LEGEND

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-

I. GENERAL

The minimum breakdown of land use is according to the class symbol. More detail is obtained by adding the subclass number to the class symbol, or by use of special condition symbols. Any or all of the following information can be delineated.

1. Types of agricultural, urban, or native land use
2. Specific crops
3. Multiple land use
4. Sources of water supply
5. Type of irrigation system

This legend is for land use surveys conducted in 2016 and after.

II. AGRICULTURAL CLASSES

The vast majority of crops grown in California are irrigated. Unless preceded with an "n" if it is non-irrigated, all agricultural classes are considered irrigated. (This statement is for the agricultural classes and does not apply to the other non-agricultural classes of semi agricultural, urban, or native.)

G - GRAIN AND HAY CROPS

1. Barley
2. Wheat
3. Oats
6. Miscellaneous grain and hay [barley, cover crops (soil building), forage mixes, mixed grain and hay, oats, cereal rye, triticale, vetch, grouped for remote sensing]
7. Mixed grain and hay

R - RICE

1. Rice
2. Wild rice

F - FIELD CROPS

1. Cotton
2. Safflower
3. Flax
4. Hops
5. Sugar beets
6. Corn (field & sweet)
7. Grain sorghum
8. Sudan
9. Castor beans
10. Beans (dry), [blackeye beans, caster beans, common beans (kidney, pinto, black, cranberry), garbanzo beans, lima beans, grouped for remote sensing]
11. Miscellaneous field [flax, hemp, hops, horse radish, millet, mint, quinoa, sugar cane, mixed field crops, grouped for remote sensing]
12. Sunflowers
13. Hybrid sorghum/Sudan
14. Millet
15. Sugar cane
16. [Corn (field and sweet), hybrid sorghum/Sudan grass, grouped for remote sensing]

P - PASTURE

1. Alfalfa & alfalfa mixtures
2. Clover
3. Mixed pasture [clover, mixed pasture, including high water table native pasture, native pasture, grouped for remote sensing]
4. Native pasture
5. Induced high water table
6. Miscellaneous grasses [bermudagrass, forage grass, Klein grass, ryegrass, teff, turf, grouped for remote sensing]
7. Turf farms
8. Bermuda grass
9. Rye grass
10. Klein grass

T - TRUCK, NURSERY AND BERRY CROPS

1. Artichokes
2. Asparagus
3. Beans (green)
4. Cole crops (mixture of cole crops or cole crops not specifically listed in the legend). [Broccoli, Brussel sprouts, cabbage, cauliflower, kale, mixed cole crops, grouped for remote sensing]
6. Carrots
7. Celery
8. Lettuce (all types)
9. Melons, squash, and cucumbers (all types). [Cantaloupe, cucumber, gourds, honeydew, mixed cucurbits, melons, pumpkins, spaghetti squash, squash, watermelon, yellow squash, zucchini, grouped for remote sensing]
10. Onions and garlic
11. Peas
12. Potatoes
16. Flowers, nursery & Christmas tree farms. [Cannabis, Christmas trees, cut flowers and foliage, lavender, Mexican fan palm, ornamental nursery, crop transplant nursery, tree nursery, grouped for remote sensing]
17. Mixed truck (four or more)
18. Miscellaneous truck (a truck crop not specifically listed in the legend). [Artichokes, Asian leafy vegetables, asparagus, basil, bok choy, green beans, herbs, beets (fresh market), celery, chard, cilantro, dill, eggplant, fennel, leeks, lemongrass, okra, parsley, parsnips, peas, radishes, thyme, tomatillos, turnips, mixed truck crops, grouped for remote sensing]
19. Bush berries [blueberries, blackberries, raspberries, and other bushberries, grouped for remote sensing]
20. Strawberries
21. Peppers (chili, bell, etc.)
22. Broccoli
23. Cabbage
24. Cauliflower
25. Brussels sprouts
26 Tomatoes (market)

13. Sweet potatoes
14. Spinach
15. Tomatoes (processing)
27. Greenhouse
28. Blueberries
29. Asian leafy vegetables
30. [Lettuce/Leafy Greens for remote sensing]
31. [Potato and Sweet Potato, grouped for remote sensing]
32. [Tomato (processing and market), grouped for remote sensing]

D - DECIDUOUS FRUITS AND NUTS

1. Apples
2. Apricots
3. Cherries
5. Peaches and nectarines
6. Pears
7. Plums
8. Prunes
9. Figs
10. Miscellaneous deciduous (a type of deciduous orchard not specifically listed in the legend). [Chestnuts, figs, hazelnuts, jujube, persimmons, mixed deciduous, grouped for remote sensing]
11. Mixed deciduous
12. Almonds
13. Walnuts
14. Pistachios
15. Pomegranate
16. [Plums, Prunes and Apricots, grouped for remote sensing]
17. Pecans

C - CITRUS AND SUBTROPICAL

Citrus [Clementine, grapefruit, lemons, limes, oranges (all types), mixed citrus, pomelos, tangelos, tangerines, grouped for remote sensing]
1. Grapefruit
2. Lemons
3. Oranges
4. Dates
5. Avocados
6. Olives (oil and table olives, grouped for remote sensing)
7. Miscellaneous [Cherimoya, guava, jojoba, mango, Mexican hawthorn, nopal, mixed, subtropical fruits, grouped for remote sensing]
8. Kiwis
9. Jojoba
10. Eucalyptus
11. Mixed subtropical fruits

V – VINEYARDS

Grapes [Raisin grapes, table grapes, wine grapes, grouped for remote sensing]

1. Table grapes
2. Wine grapes
3. Raisin grapes

I – IDLE

(Precede with "n" in non-irrigated area, and must include subclass)

1. Land not cropped the current or previous crop season, but cropped within the past three years.
2. New lands being prepared for crop production.
4. Long term idle, land that has been fallow or idle for four or more years.

X – UNCLASSIFIED FALLOW

Not cropped, or unclassified at the time of remote sensing analysis. Idle status not determined.

YP – Young perennial fruits and nuts [includes young orchards and vineyards, grouped for remote sensing]

III. SEMIAGRICULTURAL CLASS

(Do not precede with "n")

S - SEMIAGRICULTURAL & INCIDENTAL TO AGRICULTURE

(Must include subclass)

1. Farmsteads (includes a farm residence)
2. Livestock feed lot operations
3. Dairies
4. Poultry farms
5. Farmsteads (without a farm residence)
6. Miscellaneous semi-ag (small roads, ditches, non-planted areas of cropped fields)

IV. URBAN CLASSES

(Do not precede with "n")

U - URBAN

Residential, commercial, and industrial (may be used alone when further breakdown is not required)

UR - RESIDENTIAL

Single and multiple family units, including trailer courts (may be used alone when further breakdown is not required)

1. Single family dwellings with lot sizes greater than 1 acre up to 5 acres (ranchettes, etc.)
2. Single family dwellings with a density of 1 unit/acre up to 8+ units/acre.
3. Multiple family (apartments, condos, townhouses, barracks, bungalows, duplexes, etc.)
4. Trailer courts

WATER USE FACTOR (% of total area irrigated - will be the second digit of UR Subclass when water factor is used)

1. 0% to 25% area irrigated
2. 26% to 50% area irrigated
3. 51% to 75% area irrigated
4. 76% or greater

Example: UR32 indicates multiple family with water use factor of 26% to 50% of area irrigated.

UC - COMMERCIAL

(May be used alone when further breakdown is not required)

1. Offices, retailers, etc.
2. Hotels
3. Motels
4. Recreation vehicle parking, camp sites
5. Institutions (hospitals, prisons, reformatories, asylums, etc., having a reasonably constant 24-hour resident population)
6. Schools (yards to be mapped separately if large enough)
7. Municipal auditoriums, theaters, churches, buildings and stands associated with race tracks, football stadiums, baseball parks, rodeo arenas, amusement parks, animal boarding and/or exercise facilities, etc.
8. Miscellaneous high water use (to be used to indicate a high water use condition not covered by the above categories.)

UI - INDUSTRIAL

(May be used alone when further breakdown is not required)

1. Manufacturing, assembling, and general processing
2. Extractive industries (oil fields, rock quarries, gravel pits, rock and gravel processing plants, etc.)
3. Storage and distribution (warehouses, substations, railroad marshalling yards, tank farms, etc.)
6. Sawmills
7. Oil refineries
8. Paper mills
9. Meat packing plants
10. Steel and aluminum mills
11. Fruit and vegetable canneries and general food processing
12. Miscellaneous high water use (to be used to indicate a high water use condition not covered by other categories)
13. Sewage treatment plant including ponds.
14. Waste accumulation sites (public dumps, sewage sludge sites, landfill and hazardous waste sites, etc.)
15. Wind farms, solar collector farms, etc.

UL - URBAN LANDSCAPE

(May be used alone when further breakdown is not required)

1. Lawn area - irrigated
2. Golf course - irrigated
3. Ornamental landscape (excluding lawns) - irrigated
4. Cemeteries - irrigated
5. Cemeteries - not irrigated

UV - VACANT

(May be used alone when further breakdown is not required)

1. Unpaved areas (vacant lots, graveled surfaces, play yards, developable open lands within urban areas, etc.)
3. Railroad right of way
4. Paved areas (parking lots, paved roads, oiled surfaces, flood control channels, tennis court areas, auto sales lots, etc.)
6. Airport runways
7. Land in urban area that is not developable

V. NATIVE CLASSES

(Do not precede with "n")

NC - NATIVE CLASSES UNSEGREGATED

(May be used alone when further breakdown is not required)

NV - NATIVE VEGETATION

(May be used alone when further breakdown is not required)

1. Grass land
2. Light brush
3. Medium brush
4. Heavy brush
5. Brush and timber
6. Forest
7. Oak grassland

NR - RIPARIAN VEGETATION

(May be used alone when further breakdown is not required)

1. Marsh lands, tules and sedges
2. Natural high water table meadow
3. Trees, shrubs or other larger stream side or watercourse vegetation
4. Seasonal duck marsh, dry or only partially wet during summer
5. Permanent duck marsh, flooded during summer

NW - WATER SURFACE

(May be used alone when further breakdown is not required)

1. River or stream (natural fresh water channels)
2. Water channel (all sizes - ditches and canals - delivering water for irrigation and urban use – e.g., State Water Project, CVP, water district canals, etc.)
3. Water channel (all sizes - ditches and canals - for removing on-farm drainage, water surface runoff and subsurface drainage – e.g., Colusa Basin Drainage Canal, drainage ditches in Imperial ID)
4. Freshwater lake, reservoir, or pond (all sizes, includes ponds for stock, recreation, groundwater recharge, managed wetlands, on-farm storage, etc.)
5. Brackish and saline water (includes areas in estuaries, inland water bodies, the ocean, etc.)
6. Wastewater pond (dairy, sewage, cannery, winery, etc)
7. Paved water conveyance channels within urban areas (mainly for flood control)

NB - BARREN AND WASTELAND

(May be used alone when further breakdown is not required)

1. Dry stream channels
2. Mine Tailing
3. Barren land
4. Salt flats
5. Sand dunes

VI. UNCLASSIFIED

NS - NOT SURVEYED

Area within the investigation area that was not mapped.

E - ENTRY DENIED

Area within the investigation area that was not mapped because entry into the area was denied.

Z - OUTSIDE

Area outside of the study area.

VII. SPECIAL CONDITIONS, IRRIGATION TYPE, AND WATER SOURCE

When any of the following special conditions, type of irrigation, or source of water is displayed on a map as a label, a (-) should precede them. When more than one is used they should be displayed in the order stated above.

1. SPECIAL CONDITIONS

(only one can be used per parcel)

A - ABANDONED ORCHARDS AND VINEYARDS

Trees or vines must be in such a condition that renewal of cultural practices would restore economic production. Indicated by "A" following crop symbol.

Example: D1-A indicates an apple orchard previously irrigated but now abandoned.

B - BURNED OVER AREAS

Indicated by "B". The type and density of natural cover destroyed by fire is obtained by examination of aerial photo.

Example: NV7-B indicates oak grassland recently burned over.

C – GREEN CHOPPED

Grain or field crops harvested early for livestock feed

D - HIGH DENSITY ORCHARDS

Indicates the density of trees is higher than normally expected (used with D and C classes).

E – ECOSYSTEM RESTORATION

Native vegetation or riparian areas that have undergone restoration (used with NV and NR classes).

F - FALLOW LANDS

Land not cropped during the current crop season, but cropped during the previous crop season.

(1) If no crop residue is apparent or identifiable then the "F" symbol will follow the agricultural class symbol for the crop most representative of those grown in the area.
Example: T-F indicates fallow land within a truck crop area (with facilities for irrigation).

(2) If the crop residue is apparent and identifiable but is not from the current crop season covered by the survey then the field is considered fallow and mapped as the class of the crop residue.
Example: Surveyor found an old sugar beet residue not from current season. Land would be mapped F-F.

(3) If the crop residue is identifiable as that of a crop which was grown during the survey period, then map the field as though crop existed.
Example: Surveyor found carrot residue from current growing season. Land would be mapped T6.

G – COVER CROP

Indicates where grain, field, or pasture type crops have been planted for soil stabilization or for cover crops grown between rows of deciduous and subtropical trees and vines.

H – HARVESTED CROP

Indicates the identified crop was harvested at the time of the survey (used with truck, field, and grain crops).

K – FREEWAYS

The area within the freeway right of way.

Examples: UV-K indicates urban vacant, unsegregated, with a freeway special condition (all areas within the freeway right of way).

UV4-K indicates the urban vacant paved areas with a freeway special condition (the paved portion within the freeway right of way.)

UL3-K indicates irrigated urban landscape with a freeway special condition (irrigated landscape portion within the freeway right of way).

P – FALLOWING PROGRAM LAND

Agricultural land fallowed or idled due to participation in a water conservation, water transfer, or related program requiring fallowing.

R - RECREATIONAL

To be used with urban residential, commercial, and vacant (R.V. parks and camp sites) within primarily a seasonal recreational area.

S - SEED CROP

Indicates any crop grown for seed.

Example: P1-S indicates irrigated alfalfa seed crop.

T - TILLED LANDS

Land prepared for immediate planting, or just newly planted, including the appearance of seed lines or unidentifiable tiny seedlings.

Example: T-T indicates tilled land (either prepared for planting or just planted) in a predominately truck crop area.

U – INTERPRETED LANDUSE

Indicates that the land use was determined using other means than visual field verification.

W – LAND USE DATA AQUIRED FROM THIRD PARTY

X - PARTIALLY IRRIGATED CROPS

Crops irrigated for only part of their normal irrigation season.

Example: P3-X indicates partially irrigated mixed pasture.

Y - YOUNG CROPS

Indicates the identified crop is at early stages of growth (used with non-bearing orchards and vineyards, and truck, field, and grain crops).

Example: C3-Y indicates young non-bearing irrigated oranges.

Z - RECLAMATION

Land being leached for the removal of harmful salts. This symbol will be used following either the "Idle" symbol or symbols of crops grown as a step in the reclamation process.

Example: I2-Z indicates new lands being leached in preparation for crop production.

2. TYPE OF IRRIGATION SYSTEM

C - Center Pivot Sprinkler
L - Linear Move Sprinkler
R - Side Roll Sprinkler
H - Hand Move Sprinkler
P - Permanent Sprinkler
T - Solid Set Sprinkler
F - Furrow Irrigation
B - Border Strip Irrigation
N - Basin Irrigation
W - Wild Flooding
S - Subirrigation
D - Surface Drip Irrigation
A - Buried Drip Irrigation
M - Micro Sprinkler
E - LEPA (Low Energy Precision Application)
U - Unknown or not mapped

As part of the map symbols these irrigation type letters required a circle around them so that they are not confused with the special condition letters.

Example: P1-(B) indicates border strip irrigated alfalfa.

3. SOURCE OF IRRIGATION WATER

Water Source	Code
Surface water	1
Mixed surface & ground water	2
Ground water	3
Unknown source	4
Recycled or reclaimed	5

Example: P3-(B1) indicates border strip irrigated pasture with surface water as the water source.

VIII. MULTIPLE LAND USE

INTERCROPPING

Used with orchards or vineyards when intercropped with some other crop class. Indicated by a fractional symbol, with the orchard or vineyard symbol appearing in the numerator.

Example: D12-Y/F10 indicates young almonds intercropped with dry beans.

DOUBLE CROPS

Used when two consecutive crops are grown in the survey season. The first crop is indicated by enclosed parenthesis.

Example: (G)F6 indicates irrigated grain followed by field corn.

TRIPLE CROPS

Used when three consecutive crops are grown in the survey season. The first and second crops are indicated by enclosed parenthesis.

Example: (T8)(T23)T8 indicates irrigated lettuce followed by cabbage followed by lettuce.

MIXED LAND USE

Used when two to three land uses are present in one area but, because of the large degree of intermixing, cannot be delineated separately. Indicated by percentages following land use symbols. No more than three different land uses may be used in describing the area. Percentages are in increments of 10.

Example: D5 - 40% indicates irrigated peaches 40%
NV - 20% indicates native vegetation 20%
UR - 40% indicates urban residential 40%

IX. FURTHER INSTRUCTIONS, CLARIFICATIONS AND EXAMPLES

1) Land use class and subclass should come before the dash which separates the special condition, irrigation type, and source of water.

2) Water source should be the last symbol in the code. If the field has more that one crop, the source should follow the last crop.

3) Irrigation type and source of water must be enclosed in a circle.

LAND USE CODE EXAMPLES

Single Crop:

F1-(F3)

Indicates cotton that is furrow irrigated with ground water as the water source.

D12-Y(P)
Indicates young irrigated almonds that are irrigated with a permanent sprinkler system.

Intercropped:

D13-Y/F10(P1)
Indicates young irrigated walnuts intercropped with dry beans, irrigated by a permanent sprinkler system with surface water as the water source.

Double cropped:

(G-H)F6-(F2)
Indicates grain irrigated with a hand move sprinkler system followed by furrow irrigated corn, with mixed ground and surface water as the water source.

Triple Cropped:

(T8)(T23)T8-(P)
Indicates irrigated lettuce followed by irrigated cabbage followed by irrigated lettuce, all three crops irrigated by a permanent sprinkler system (when type of irrigation is not shown next to the first and second crops, the irrigation type for the last crop will be assumed for the first two crops).

(T8-(U)(T23-(U)T8-(H3)
Indicates irrigated lettuce with unknown irrigation type, followed by irrigated cabbage with unknown irrigation type, followed by lettuce irrigated with a hand move sprinkler system, with ground water as the water source.