Appendix G3c

Economic Considerations for the Proposed Voluntary Agreements

This appendix presents the agricultural economic analysis for the proposed Voluntary Agreements (VAs) using the Statewide Agricultural Production (SWAP) model. In addition, this appendix presents the regional economic analysis for the proposed VAs using IMPLAN software. These analyses are presented in Section G3c.1, *Agricultural Economic Analysis: SWAP Methodology and Modeling Results*, and Section G3c.2, *Regional Economic Analysis Modeling Procedure*.

G3c.1 Agricultural Economic Analysis: SWAP Methodology and Modeling Results

G3c.1.1 Introduction

Agricultural production in the Sacramento River watershed, Delta eastside tributaries, Delta, and San Joaquin Valley regions could be affected by implementation of the VAs. Growers' responses to changes in water supply in the Sacramento/Delta and San Joaquin Valley are estimated using the SWAP model. The SWAP model considers agricultural cropping decisions under reduced water supply based on relative profit of crop production. Responses to reduced surface water supply would be expected to include switching to less water-demanding crops or fallowing land that is least profitable. SacWAM model results are incorporated into the SWAP model by defining the surface water supply available to SWAP regions, in a process similar to that used for evaluation of the proposed Plan amendments, Low Flow Alternative, and High Flow Alternative. Appendix A3, *Agricultural Economic Analysis: SWAP Methodology and Modeling Results*, provides more information about the SWAP model, the geographic regions it covers, and the approach to the agricultural economic analysis.

Sacramento/Delta water supply reductions would be based on voluntary measures that would be largely or entirely from agricultural supplies, reservoir reoperations, or based on groundwater substitution. Section 9.3, *Description of the Proposed Voluntary Agreements*, provides details regarding the VA flow assets. The proposed VAs include tributary flow assets and Delta and estuary assets, including assets that would be provided through water purchase programs. The sources for the PWA Water Purchase Fixed Price Program are identified and as such are modeled in SacWAM. However, the unspecified water purchases (PWA Water Purchase Market Price Program and permanent state water purchases) would be from unspecified willing sellers, which could include inflow sources within the Sacramento/Delta watershed or reductions in exports, both of which could result in additional Delta outflows.

G3c.1.2 SWAP Model Runs

The SWAP model estimates changes in cropping patterns, crop revenue, and profit from baseline conditions due to changes in water supply. The change in agricultural production or crop revenue from baseline represents the estimated direct economic effect associated with the proposed VAs.

For the analysis of the proposed VAs, two SWAP modeling scenarios were used to estimate effects on agricultural production in the Sacramento/Delta and San Joaquin Valley regions.

1. *VA without unspecified water purchases*: This scenario considers possible agricultural economic effects of the proposed VAs, but does not include changes in surface water supply availability due to the unspecified water purchases because the sources of the unspecified water purchases are not fully known at this time.
2. *VA with unspecified water purchases*: This scenario considers possible agricultural economic effects of the proposed VAs, including changes in water supply that could occur as a result of unspecified water purchases. SWAP estimates the possible sources and effects of the unspecified water purchases based on economic criteria. Modeling constraints were added to the SWAP model to allow optimization of crop production across all SWAP regions while accounting for the volume of water removed from supply due to the unspecified water purchases. Actual grower responses may vary from the SWAP model results. In particular, the unspecified water purchases would be provided from willing sellers that choose to participate in the water purchase program; therefore, the effects on agricultural production may differ from the SWAP model results.

Each VA modeling scenario is run under average water year and dry water year conditions, which are discussed in more detail below.

To capture the most conservative outcome for evaluating potential impacts, the analysis for the proposed VAs quantities estimated changes in crop acreage assuming groundwater is not used to replace lost surface water supply, which is referred to as a "no replacement groundwater pumping" condition. The "no replacement groundwater pumping" condition is further described in Appendix A3, *Agricultural Economic Analysis: SWAP Methodology and Modeling Results*. If flow assets are provided through groundwater substitution, the reduction in crop acreage under the proposed VAs could be less than indicated by the SWAP model results.

G3c.1.3 Methodology for Evaluating the Effects of the Proposed Voluntary Agreements on Agricultural Production

Details about SWAP general modeling assumptions are contained in Appendix A3, *Agricultural Economic Analysis: SWAP Methodology and Modeling Results*, and summarized in Section 7.4, *Agriculture and Forest Resources*. Some particularly relevant assumptions are mentioned here.

The SWAP model estimates growers' responses to changes in water supply by determining the cropping pattern that maximizes the net returns to agricultural production for 28 production regions: Regions 1 through 9 in the Sacramento/Delta watershed and Regions 10 through 21C in the San Joaquin Valley. The model incorporates information into its analysis on the availability of water supplies within a SWAP region, including SWP and CVP deliveries, local surface water supplies, and groundwater. As conditions change within a SWAP-modeled region (e.g., the quantity of available SWP and CVP water supply decreases), the model optimizes production by adjusting the crop mix, water sources and quantities used, and other inputs. SWAP estimates that land will be fallowed when estimated to be the most cost-effective response to resource conditions.

Each SWAP region is optimized independently, and water supply to a particular region is limiting. This means that water transfers from one region to another are not represented within the SWAP model. This operational assumption was used in all SWAP model runs. This assumption causes most

production regions to utilize most or all available surface water supply during a model run, but some regions may have surplus water under some conditions.

The objective in running the SWAP model is to estimate the effects of hydrologic changes on long-term cropping decisions using SacWAM results to represent surface water supply changes. For the agricultural analyses, the SWAP model is run for both average and dry year water supply conditions. The average year surface water supply condition ("average year") was developed by calculating the straight average for all water year types. The dry year surface water supply condition ("dry year") was calculated using the weighted average for water year types classified as dry and critical.

The approach used in evaluating how the proposed VAs could affect agricultural production and water use is similar to that used for evaluating the flow scenarios. However, some characteristics of the proposed VA flow assets and components require that additional assumptions and adjustments be made to the SWAP model inputs and modeling constraints. The discussion below provides an overview of the methodology adjustments made.

G3c.1.3.1 Accounting for VA Flow Assets

As described in Appendix A-3, *Agricultural Economic Analysis: SWAP Methodology and Modeling Results*, the SWAP model platform contains default volumes of water supply in each SWAP region associated with the following supply sources: SWP, CVP, CVP Settlement, CVP Class 2, local water sources, and groundwater. These volumes represent the upper limit on the amount of water available from the respective sources. The SacWAM model simulates hydrology for the 94-year hydrologic period, and generates Sacramento/Delta surface water supply volumes that are postprocessed and assigned to SWAP model supply sources.

A SWAP model run will generate a crop mix across all SWAP regions that maximizes net returns utilizing (but not exceeding) the available water supply portfolio. Output from each SWAP run includes the optimized crop acreages for each crop and the volume of water used from each supply source. The volume of water used by each supply source will be less than or equal to the maximum supply available for that source.

With the exception of the unspecified water purchases (discussed further below), the following process was used to incorporate the VA flow assets into the SWAP model runs:

1. The SWAP model is run under baseline conditions, including water supply volumes received from the SacWAM model runs. The same baseline is used in the comparison with both the flow scenarios and the proposed VAs.
2. SWAP model run outputs includes acreage by crop type and a table of the volume of water used, by supply source and SWAP region.
3. The results from the SacWAM model run for the VA scenario provides Sacramento/Delta surface water supply volumes. In locations where VA flow assets are intended for use as contributions to tributary flow and Delta outflow, the resulting SWAP input water supply volumes will be lower than baseline. In other words, the initial amount of water available for irrigation is reduced by the amount of flow assets contributed.
4. For the VA without unspecified water purchases SWAP runs, the initial water supply volumes used in SWAP were derived by replacing each supply source with (1) the baseline volume used, less (2) the flow asset volume contributing to flow from that SWAP region and supply source.

This construct ensures that flow asset contributions will actually come from water that would otherwise be available for irrigation.

a. For example, suppose that in the baseline SWAP run, the output indicates that 100 thousand acre-feet (TAF) of water from Source X in Region Y is the volume of water actually used (see 2 above).

b. Suppose also that 10 TAF of assets will be contributed to flow under the proposed VAs and is reflected in the results for the SacWAM model run for the proposed VAs.

c. Then for the VA without unspecified water purchases SWAP runs, the maximum water supply volume for Source X in Region Y is 90 TAF (which equals 100 TAF less 10 TAF).

5. The output from the VA without unspecified water purchases SWAP runs will reflect the effect on agricultural production from reduced water supply available to agriculture due to the flow assets modeled in SacWAM.

G3c.1.3.2 Accounting for Unspecified Water Purchases

The unspecified water purchases (PWA Water Purchase Market Price Program and permanent state water purchases) would be from unspecified willing sellers, which could include inflow sources within the Sacramento/Delta watershed or export reductions, both of which could result in additional Delta outflows. As discussed in Section 9.5, the SacWAM VA tributary inflow analyses do not assume any additional Delta inflows from unspecified water purchases given the unknown origin of these water purchases.

Many factors could influence participation in the unspecified water purchase programs. SWAP estimates the possible sources and effects of the unspecified water purchases based on economic criteria. This analysis uses an approach that considers cropping decisions under reduced water supply based on relative profit of crop production. Growers' responses to reduced surface water supply would be expected to include switching to less water-demanding crops or fallowing land that is least profitable.

The unspecified water purchases are implemented within SWAP by adding "global constraints." This is accomplished by first considering the water supply available in each region from all surface water supplies (CVP, CVP Settlement and Exchange, Friant Class 2, SWP, and local) under baseline conditions. Next, the quantity of water purchased for Delta outflow is simulated by adding a restriction to the model such that:

The aggregate total of all surface water supplies across all regions must not exceed the baseline total minus the volume of water purchased.

For example, if the aggregate total under baseline conditions is 1,000 TAF, and the water purchase is equivalent to 50 TAF, then the new restriction in the model is: the sum of all surface water supplies cannot exceed 950 TAF, or 1,000 TAF minus 50 TAF. During the optimization process, the SWAP model will simulate cropping decisions based on the existing water supplies. If the partial (or intermediate) solution violates the newly imposed restriction, then the model will shift crops or fallow land as needed to reduce overall surface water use. For the example above, this occurs if the aggregate total exceeds 950 TAF. In essence, the model seeks, among all regions and crops, the least profitable acres of land in which to reduce water use; this will simultaneously reduce the demand for water from whatever surface water source "irrigated" that land. The model's process of reducing

water use incrementally ultimately will arrive at a solution that meets the new restriction (e.g., equal to or less than 950 TAF).

The following technical adjustments were made to the SWAP model to allow for economic consideration of the unspecified water purchases. The adjustments involve a series of global constraints added to the model prior to solving the "VA with unspecified water purchases" model run:

1. Contributions from the Friant System reflect a reduction in recaptured San Joaquin River Restoration Project. For the purposes of the SWAP analysis, a constraint is placed in the model on SWAP regions encompassing the Friant System, which includes Regions 13, 16, 17, 18, 20, and 21B. Operationally, the aggregate total of surface water supplies (CVP, SWP, and local) is reduced by 27.1 TAF for average year and 29.1 TAF for the dry year model runs.
2. The PWA Water Purchase Program, Market Price category will provide water from unspecified locations. This is modeled through an additional global constraint that applies to all surface water supplies in the Sacramento/Delta and San Joaquin River basin that receive Sacramento/ Delta water (i.e., SWAP Regions 1 through 21C, excluding Regions 11 and 12). For the SWAP runs, the aggregate total of surface water supplies was reduced from baseline by 24.4 TAF in the average year model runs, and by 26.3 TAF in the dry year model runs. Fallowing can occur anywhere in the Sacramento/Delta and San Joaquin Valley regions. This works in combination with the other constraints to achieve the volume of water purchases from unspecified sources and regions.
3. The PWA Water Purchase Program, Mokelumne River are unspecified water purchases, so volumes of 9.1 TAF (average year) and 2.9 TAF (dry year) were added to the global constraints in (2), above.
4. The Permanent State Water Purchases are unspecified water purchases, which are included in the added global constraints to all SWAP regions as 80.0 TAF (average year) and 90.1 TAF (dry year). Operationally, these volumes were added to those in (2), above.
5. Table 1a in the VA Term Sheet includes footnote 6, which states:

   "The new flow contributions from the Sacramento River Basin identified in this Table 1a, plus new flow contributions resulting from the below-referenced PWA Water Purchase Program, Permanent State Water Purchases, and PWA Fixed Price Water Purchase Program line items in Tables 1a and 1b, are not intended to result in idling more than 35,000 acres of rice land in the Sacramento River Basin."

   The SWAP model incorporates a constraint that limits fallowing rice in the Sacramento River basin to 35,000 acres in the average year and dry year model runs.

G3c.1.4 SWAP Modeling Results

G3c.1.4.1 Results of the VA with Unspecified Water Purchases Model Runs

The results of the VA SWAP runs with unspecified water purchases represent a potential outcome assuming that economic considerations are the primary determinant of a grower's participation in the unspecified water purchase programs. The model constraints described above allow the volume of water involved in the unspecified water purchases to be provided from a combination of reductions in exports or increases in inflows. The differences in surface water use for the "with" and

"without" unspecified water purchases SWAP runs can be used to estimate the distribution of the unspecified water purchases among reductions in exports and increases in inflows. The distribution is shown in Table G3c-1. Table G3c-1 also includes the distributions for the Fixed Price Water Purchase program that are based on the commitments described in the VA Term Sheet. Information in this table is used in the regional economic effects analysis (see Section G3c.4), which accounts for compensation of growers for water purchases.

However, as discussed above, actual grower responses may vary from the SWAP model results. In particular, the unspecified water purchases would be provided from willing sellers that choose to participate in the water purchase program; therefore, the effects on agricultural production may differ from the SWAP model results.

Table G3c-1. Potential Distribution of VA Water Purchases Based on SWAP Economic Optimization Modeling (acre-feet)

	Increases in Inflows	Reductions in Exports	Total
Fixed price water purchases	5,420	46,292	51,712
Unspecified water purchases	35,404	78,049	113,453
Total	40,824	124,341	165,165

Source: SWAP model output.

G3c.1.4.2 Detailed SWAP Results for Crop Acreage and Gross Revenue

Detailed SWAP results for crop acreage and gross revenue for the Sacramento/Delta and San Joaquin Valley regions are provided in Tables G3c-2 through G3c-25. The tables are organized by region and model run. Results are provided for average year and dry year model runs. Output is presented for baseline (existing conditions), VA with Unspecified Water Purchases, and VA without Unspecified Water Purchases.

Sacramento/Delta Crop Acres

Table G3c-2. Sacramento/Delta Crop Acres – Average Year, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.7	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.6	88.0	10.8	0.4	1.5	5.8	0.9	0.0	14.1	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.8	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.3	2.0	0.0	0.0	0.0
V05	1.4	28.3	2.7	0.1	0.5	3.1	3.9	0.0	5.1	0.0	101.3	2.3	0.5	19.9	0.0	1.6	185.0	0.9	0.0	6.6	0.0
V06	55.7	8.2	16.9	0.0	0.0	5.1	3.9	1.3	36.6	1.1	23.8	23.6	2.8	26.9	0.0	28.6	17.5	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.3	0.0	8.2	0.0	10.4	0.9	0.6	21.0	0.0	0.4	61.6	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table G3c-3. Sacramento/Delta Crop Acres – Average Year, VA with Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	3.1	0.4	0.5	12.3	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.7	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.7	0.5	0.6	26.4	0.0	0.0	0.9	0.1	0.0	21.9	0.0
V03A	12.3	9.0	6.1	0.2	1.0	8.2	1.6	0.0	6.2	0.4	21.0	5.9	0.2	4.6	0.0	10.2	213.6	2.1	0.0	0.1	0.1
V03B	18.6	87.8	10.8	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.1	8.6	0.1	9.2	0.0	20.8	6.0	0.1	1.1	0.0	6.4	69.2	2.0	0.0	0.0	0.0
V05	1.3	28.0	2.7	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.0	2.3	0.5	19.1	0.0	1.6	181.1	0.9	0.0	6.6	0.0
V06	55.2	8.1	16.9	0.0	0.0	5.1	3.9	1.3	38.4	1.1	23.8	23.6	2.8	26.3	0.0	28.5	17.2	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.4	0.0	8.7	0.0	10.4	1.0	0.6	20.8	0.0	0.4	61.0	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	64.2	2.0	66.7	38.9	0.0	5.1	5.0	3.9	33.6	0.5	18.2	18.4	12.0	46.4	2.2	25.8	4.3	18.9	0.0	0.9	25.2

Table G3c-4. Sacramento/Delta Crop Acres – Average Year, VA Without Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.9	25.9	1.4	0.0	0.0	0.9	0.7	0.0	7.8	0.0	53.8	0.5	0.6	27.1	0.0	0.0	0.9	0.1	0.0	22.0	0.0
V03A	12.3	9.0	6.1	0.2	1.0	8.2	1.6	0.0	6.2	0.4	21.0	5.9	0.2	4.6	0.0	10.2	213.6	2.1	0.0	0.1	0.1
V03B	18.6	87.8	10.8	0.4	1.5	5.8	0.9	0.0	14.3	1.6	11.7	5.0	1.2	9.1	0.0	13.9	10.7	0.7	0.0	7.6	4.8
V04	3.1	3.2	8.7	0.2	0.3	11.1	8.6	0.1	9.2	0.0	20.8	6.0	0.1	1.1	0.0	6.4	69.2	2.0	0.0	0.0	0.0
V05	1.3	28.0	2.7	0.1	0.5	3.1	3.9	0.0	5.5	0.0	101.0	2.3	0.5	19.1	0.0	1.6	181.1	0.9	0.0	6.6	0.0
V06	55.5	8.2	16.9	0.0	0.0	5.1	3.9	1.3	37.3	1.1	23.8	23.6	2.8	26.7	0.0	28.5	17.4	4.7	0.0	0.9	2.3
V07	4.2	0.1	2.0	0.6	0.0	0.2	0.4	0.0	8.7	0.0	10.4	1.0	0.6	20.8	0.0	0.4	61.0	0.3	0.0	0.4	0.2
V08	18.3	3.5	18.0	17.3	0.0	1.9	3.8	2.5	15.3	0.7	65.0	3.6	4.5	28.4	0.0	14.6	3.0	0.3	0.0	0.9	102.0
V09	65.2	2.0	67.4	39.2	0.0	5.1	5.2	4.0	33.4	0.5	18.2	18.5	12.0	49.5	2.2	26.0	4.4	18.8	0.0	0.9	25.2

Table G3c-5. Sacramento/Delta Crop Acres – Dry Year, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	3.1	0.4	0.5	12.6	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.5	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.6	0.5	0.6	25.6	0.0	0.0	0.9	0.1	0.0	21.9	0.0
V03A	12.4	9.0	6.0	0.2	1.0	8.1	1.5	0.0	5.7	0.4	21.0	5.8	0.2	4.7	0.0	10.1	214.3	2.0	0.0	0.1	0.1
V03B	18.0	86.5	10.6	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	2.7	0.0	13.6	10.4	0.7	0.0	7.6	4.7
V04	3.1	3.2	8.7	0.2	0.3	11.0	8.6	0.1	7.7	0.0	20.9	6.0	0.1	1.2	0.0	6.5	70.4	2.0	0.0	0.0	0.0
V05	1.3	27.9	2.7	0.1	0.5	3.1	3.8	0.0	5.4	0.0	100.9	2.3	0.5	18.4	0.0	1.6	179.1	0.9	0.0	6.6	0.0
V06	54.3	7.9	16.8	0.0	0.0	5.1	3.9	1.3	40.5	1.1	23.7	23.7	2.8	25.1	0.0	28.4	16.7	4.8	0.0	0.9	2.3
V07	4.0	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	17.2	0.0	0.4	58.2	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.4	16.9	0.0	1.9	3.3	2.5	16.0	0.7	64.7	3.5	4.5	21.1	0.0	14.3	2.6	0.3	0.0	0.9	101.6
V09	64.8	2.0	67.2	39.1	0.0	5.1	5.2	4.0	33.8	0.5	18.2	18.5	12.0	48.3	2.2	26.0	4.4	18.9	0.0	0.9	25.2

Table G3c-6. Sacramento/Delta Crop Acres – Dry Year, VA with Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	3.1	0.4	0.5	12.3	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.5	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.6	0.5	0.6	25.4	0.0	0.0	0.9	0.1	0.0	21.9	0.0
V03A	12.3	9.0	6.1	0.2	1.0	8.2	1.6	0.0	6.2	0.4	21.0	5.9	0.2	4.6	0.0	10.2	213.6	2.1	0.0	0.1	0.1
V03B	18.0	86.5	10.6	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	1.9	0.0	13.6	10.4	0.7	0.0	7.6	4.7
V04	3.1	3.2	8.7	0.2	0.3	11.1	8.6	0.1	9.3	0.0	20.8	6.0	0.1	1.1	0.0	6.4	69.1	2.1	0.0	0.0	0.0
V05	1.3	27.8	2.6	0.1	0.5	3.1	3.7	0.0	5.4	0.0	100.7	2.2	0.5	16.9	0.0	1.5	176.0	0.9	0.0	6.5	0.0
V06	54.2	7.9	16.8	0.0	0.0	5.1	3.9	1.3	40.5	1.1	23.7	23.7	2.8	24.9	0.0	28.3	16.7	4.8	0.0	0.9	2.3
V07	4.0	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	16.7	0.0	0.4	58.0	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.4	16.9	0.0	1.9	3.3	2.5	16.0	0.7	64.7	3.5	4.5	21.1	0.0	14.3	2.6	0.3	0.0	0.9	101.6
V09	63.7	2.0	66.3	38.7	0.0	5.1	4.8	3.9	33.5	0.5	18.2	18.3	11.9	44.2	2.2	25.7	4.2	18.8	0.0	0.9	25.2

Table G3c-7. Sacramento/Delta Crop Acres – Dry Year, VA Without Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.4	0.0	3.1	0.4	0.5	12.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2
V02	2.8	25.5	1.4	0.0	0.0	0.9	0.7	0.0	8.2	0.0	53.6	0.5	0.6	25.5	0.0	0.0	0.9	0.1	0.0	21.9	0.0
V03A	12.3	9.0	6.1	0.2	1.0	8.2	1.6	0.0	6.2	0.4	21.0	5.9	0.2	4.6	0.0	10.2	213.6	2.1	0.0	0.1	0.1
V03B	18.0	86.5	10.6	0.4	1.5	5.7	0.8	0.0	14.2	1.6	11.7	4.9	1.2	1.9	0.0	13.6	10.4	0.7	0.0	7.6	4.7
V04	3.1	3.2	8.6	0.2	0.3	11.1	8.5	0.1	9.1	0.0	20.8	6.0	0.1	1.1	0.0	6.4	69.3	2.0	0.0	0.0	0.0
V05	1.3	27.8	2.6	0.1	0.5	3.1	3.7	0.0	5.4	0.0	100.7	2.2	0.5	16.9	0.0	1.5	176.0	0.9	0.0	6.5	0.0
V06	54.2	7.9	16.8	0.0	0.0	5.1	3.9	1.3	40.5	1.1	23.7	23.7	2.8	24.9	0.0	28.3	16.7	4.8	0.0	0.9	2.3
V07	4.0	0.1	1.9	0.6	0.0	0.2	0.3	0.0	8.6	0.0	10.3	0.9	0.6	16.7	0.0	0.4	58.0	0.3	0.0	0.4	0.2
V08	17.7	3.4	17.4	16.9	0.0	1.9	3.3	2.5	16.0	0.7	64.7	3.5	4.5	21.1	0.0	14.3	2.6	0.3	0.0	0.9	101.6
V09	64.7	2.0	67.2	39.1	0.0	5.1	5.2	4.0	33.8	0.5	18.2	18.5	12.0	48.2	2.2	26.0	4.4	18.9	0.0	0.9	25.2

San Joaquin Valley Crop Acres

Table G3c-8. San Joaquin Valley Crop Acres – Average Year, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.5	51.8	3.9	36.2	48.7	20.2	27.6	14.7	4.6	3.7	22.1	95.9	17.4	15.5	0.1	49.2	3.2	1.7	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.9	165.3	8.9	66.4	14.5	1.5	0.1	5.2	20.2	0.1	20.9	46.3	24.7	21.9	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.9	58.4	15.6	152.6	28.4	0.7	6.5	0.2	26.9	0.3	50.7	147.1	5.7	2.1	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.5	2.7	7.4	3.2	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table G3c-9. San Joaquin Valley Crop Acres – Average Year, VA with Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.0	51.7	3.9	36.3	48.7	20.3	27.8	14.7	4.8	3.7	22.1	96.2	17.6	15.0	0.1	49.3	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.6	165.3	8.9	66.7	14.5	1.5	0.1	5.2	20.5	0.1	20.9	46.6	25.0	20.9	0.1	13.6	1.7	0.3	0.3	5.2	76.4
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.5	59.0	7.2	60.2	91.9	0.3	2.9	0.8	53.2	9.6	37.7	81.2	3.2	6.5	0.0	43.6	0.0	4.5	0.0	0.5	58.1
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	6.9	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.6	0.0	8.3	0.0	9.1	7.1	0.0	0.0	0.0	0.0	0.0	14.3	58.9
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.1	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	88.3	58.3	15.5	151.9	28.4	0.7	6.5	0.2	26.9	0.3	50.6	146.5	5.7	0.1	0.2	0.8	0.0	0.0	0.0	101.2	44.9
V19A	0.5	68.2	0.3	0.0	1.9	0.3	0.0	0.2	13.7	0.5	9.7	0.0	5.0	0.0	0.0	0.3	0.0	0.0	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.4	2.7	7.4	3.1	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.2
V21C	3.1	6.4	0.6	0.0	5.3	0.8	0.0	0.0	2.2	3.3	5.0	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.5	11.3

Table G3c-10. San Joaquin Valley Crop Acres – Average Year, VA Without Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	76.0	51.7	3.9	36.3	48.7	20.3	27.8	14.7	4.8	3.7	22.1	96.2	17.6	15.0	0.1	49.3	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.8	165.3	8.9	66.5	14.5	1.5	0.1	5.2	20.3	0.1	20.9	46.5	24.9	21.4	0.1	13.6	1.8	0.3	0.3	5.2	76.3
V14A	13.0	102.6	1.6	6.4	42.4	22.7	5.8	3.5	67.6	21.5	7.1	19.5	22.9	0.0	0.0	75.6	0.0	0.9	0.0	2.9	13.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	80.4	59.1	7.3	60.7	92.3	0.3	2.9	0.8	53.1	9.6	37.8	81.9	3.2	15.8	0.0	43.7	0.0	4.6	0.0	0.5	58.2
V15B	0.4	12.0	0.0	0.0	1.5	0.4	0.0	0.0	2.6	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.5	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.2	0.0	2.0	0.0	0.0	0.0	46.8	76.0
V18	88.7	58.3	15.6	152.5	28.4	0.7	6.5	0.2	27.0	0.3	50.7	147.1	5.7	2.0	0.2	0.8	0.0	0.0	0.0	101.3	45.0
V19A	0.6	68.6	0.4	0.0	1.9	0.3	0.0	0.2	14.0	0.5	9.8	0.0	5.0	0.0	0.0	0.3	0.0	0.2	0.0	2.1	2.1
V19B	39.7	45.2	2.0	19.9	19.8	0.0	0.0	0.2	13.7	0.9	1.3	7.5	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.5
V20	15.6	82.8	5.1	0.0	2.9	0.0	1.3	0.1	9.9	0.6	7.2	2.4	7.3	0.0	0.4	0.5	0.0	0.0	0.0	27.8	39.7
V21A	54.4	13.2	48.8	0.0	19.7	0.4	1.3	0.2	15.2	2.3	0.6	8.0	6.0	0.0	1.0	10.0	0.0	1.2	0.0	0.0	5.1
V21B	0.9	10.1	0.9	0.0	1.8	1.4	0.1	0.1	6.4	2.7	7.4	3.1	13.2	0.0	10.8	1.4	0.0	0.2	0.0	13.2	31.3
V21C	3.5	6.5	1.0	0.0	5.5	0.8	0.0	0.0	2.3	3.4	5.0	0.0	5.2	0.0	1.4	0.0	0.0	0.4	0.0	15.6	11.4

Table G3c-11. San Joaquin Valley Crop Acres – Dry Year, Existing Conditions (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.8	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.1	164.5	8.8	66.1	14.4	1.5	0.1	5.2	20.5	0.1	20.9	46.1	24.9	4.7	0.1	13.5	1.7	0.3	0.3	5.2	76.3
V14A	0.0	97.4	0.0	4.5	34.6	20.7	0.0	3.5	57.0	20.6	6.9	0.0	22.6	0.0	0.0	65.2	0.0	0.0	0.0	2.6	12.3
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.7	59.0	7.2	60.4	92.0	0.3	2.9	0.8	53.2	9.6	37.7	81.4	3.2	12.8	0.0	43.6	0.0	4.5	0.0	0.5	58.2
V15B	0.0	11.0	0.0	0.0	0.8	0.3	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	81.1	57.6	13.1	138.3	27.7	0.7	5.1	0.2	25.8	0.3	50.3	131.2	5.6	0.0	0.2	0.8	0.0	0.0	0.0	100.4	44.1
V19A	0.0	62.6	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2	9.4	0.0	4.6	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.9
V19B	37.7	44.9	0.9	17.9	19.5	0.0	0.0	0.2	13.2	0.9	1.3	6.6	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	13.7	82.3	0.0	0.0	2.8	0.0	1.2	0.1	9.6	0.6	7.2	0.0	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.7	39.3
V21A	52.3	13.1	45.0	0.0	19.4	0.4	1.2	0.2	14.8	2.3	0.6	7.6	6.0	0.0	1.0	9.9	0.0	0.8	0.0	0.0	5.1
V21B	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.0	0.0	11.8	0.0	10.4	0.8	0.0	0.0	0.0	12.4	27.1
V21C	0.9	6.3	0.0	0.0	5.2	0.7	0.0	0.0	1.9	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.1

Table G3c-12. San Joaquin Valley Crop Acres – Dry Year, VA with Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.7	51.7	3.9	36.4	48.7	20.3	28.0	14.8	4.8	3.7	22.1	96.3	17.7	14.6	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.1	164.5	8.8	66.1	14.4	1.5	0.1	5.2	20.5	0.1	20.9	46.1	24.9	4.3	0.1	13.5	1.7	0.3	0.3	5.2	76.3
V14A	0.0	96.9	0.0	4.5	32.7	20.4	0.0	3.5	54.7	20.5	6.8	0.0	22.6	0.0	0.0	63.4	0.0	0.0	0.0	2.6	12.2
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.3	58.9	7.1	60.0	91.8	0.3	2.8	0.8	53.1	9.6	37.7	80.9	3.2	0.0	0.0	43.5	0.0	4.5	0.0	0.5	58.1
V15B	0.0	11.0	0.0	0.0	0.9	0.3	0.0	0.0	0.4	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
V16	6.9	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.7	0.0	8.3	0.0	9.2	6.9	0.0	0.0	0.0	0.0	0.0	14.3	59.0
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	10.7	0.0	2.0	0.0	0.0	0.0	46.8	76.2
V18	81.1	57.6	13.1	138.2	27.7	0.7	5.1	0.2	25.8	0.3	50.3	131.1	5.6	0.0	0.2	0.8	0.0	0.0	0.0	100.4	44.1
V19A	0.0	62.8	0.0	0.0	0.5	0.2	0.0	0.2	0.0	0.2	9.4	0.0	4.6	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.9
V19B	37.7	44.9	1.1	18.0	19.5	0.0	0.0	0.2	13.2	0.9	1.3	6.7	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	13.7	82.3	0.0	0.0	2.8	0.0	1.2	0.1	9.6	0.6	7.2	0.0	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.7	39.3
V21A	52.4	13.1	45.2	0.0	19.4	0.4	1.2	0.2	14.8	2.3	0.6	7.6	6.0	0.0	1.0	9.9	0.0	0.8	0.0	0.0	5.1
V21B	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.0	0.0	11.8	0.0	10.4	0.8	0.0	0.0	0.0	12.4	27.1
V21C	1.0	6.3	0.0	0.0	5.2	0.7	0.0	0.0	1.9	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.1

Table G3c-13. San Joaquin Valley Crop Acres – Dry Year, VA Without Unspecified Water Purchases (thousands of acres)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	75.8	51.7	3.9	36.4	48.7	20.3	27.9	14.8	4.8	3.7	22.1	96.3	17.6	14.7	0.1	49.4	3.1	1.8	0.0	0.7	5.1
V11	10.9	87.2	6.3	32.0	0.0	1.0	0.8	0.1	3.1	0.9	31.3	25.7	9.9	28.5	0.0	0.6	5.2	0.2	0.0	2.6	12.3
V12	24.0	104.4	2.8	69.4	0.0	0.7	2.1	0.6	1.9	0.0	15.0	47.2	16.1	10.8	0.0	0.0	0.0	0.0	0.0	0.1	8.9
V13	64.1	164.5	8.8	66.1	14.4	1.5	0.1	5.2	20.5	0.1	20.9	46.1	24.9	4.6	0.1	13.5	1.7	0.3	0.3	5.2	76.3
V14A	0.0	96.9	0.0	4.5	32.7	20.4	0.0	3.5	54.7	20.5	6.8	0.0	22.6	0.0	0.0	63.4	0.0	0.0	0.0	2.6	12.2
V14B	0.1	6.3	0.0	0.4	2.4	0.5	0.0	0.0	5.3	8.3	0.4	15.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
V15A	79.7	59.0	7.2	60.4	92.0	0.3	2.9	0.8	53.2	9.6	37.7	81.4	3.2	12.8	0.0	43.6	0.0	4.5	0.0	0.5	58.2
V15B	0.0	11.0	0.0	0.0	0.9	0.3	0.0	0.0	0.4	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
V16	7.0	25.2	0.8	2.3	0.7	0.0	0.0	0.0	4.5	0.0	8.3	0.0	9.1	7.6	0.0	0.0	0.0	0.0	0.0	14.3	58.6
V17	7.3	9.0	2.1	13.6	0.3	0.5	0.2	0.0	2.1	0.1	78.3	8.1	6.9	11.0	0.0	2.0	0.0	0.0	0.0	46.8	76.1
V18	81.1	57.6	13.1	138.2	27.7	0.7	5.1	0.2	25.8	0.3	50.3	131.1	5.6	0.0	0.2	0.8	0.0	0.0	0.0	100.4	44.1
V19A	0.0	62.8	0.0	0.0	0.5	0.2	0.0	0.2	0.0	0.2	9.4	0.0	4.6	0.0	0.0	0.2	0.0	0.0	0.0	2.0	1.9
V19B	37.7	44.9	1.1	18.0	19.5	0.0	0.0	0.2	13.2	0.9	1.3	6.7	1.2	0.0	0.0	0.9	0.0	0.0	0.3	0.3	4.4
V20	13.7	82.3	0.0	0.0	2.8	0.0	1.2	0.1	9.6	0.6	7.2	0.0	7.2	0.0	0.4	0.5	0.0	0.0	0.0	27.7	39.3
V21A	52.4	13.1	45.2	0.0	19.4	0.4	1.2	0.2	14.8	2.3	0.6	7.6	6.0	0.0	1.0	9.9	0.0	0.8	0.0	0.0	5.1
V21B	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.0	0.0	11.8	0.0	10.4	0.8	0.0	0.0	0.0	12.4	27.1
V21C	1.0	6.3	0.0	0.0	5.2	0.7	0.0	0.0	1.9	3.2	4.9	0.0	5.1	0.0	1.4	0.0	0.0	0.0	0.0	15.4	11.1

Sacramento/Delta Gross Revenues

Table G3c-14. Sacramento/Delta Gross Revenues – Average Year, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.6	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.2	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.9	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	38.6	467.0	19.5	0.8	4.9	72.9	1.2	0.0	13.3	12.6	106.0	8.2	7.0	8.5	0.0	51.4	28.6	0.6	0.0	133.3	28.0
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.3	0.0	190.2	9.8	0.8	1.4	0.0	25.3	185.2	1.9	0.0	0.0	0.0
V05	2.9	177.6	4.5	0.1	1.5	39.1	6.1	0.0	4.8	0.2	923.2	3.7	2.8	18.3	0.0	5.5	492.9	0.8	0.0	115.7	0.2
V06	115.0	40.6	27.8	0.0	0.0	63.9	5.2	11.7	34.1	8.5	199.8	38.7	15.9	24.9	0.0	110.0	44.1	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	2.9	0.5	0.2	7.7	0.1	83.2	1.5	3.7	19.3	0.0	1.4	149.5	0.3	0.0	7.8	1.7
V08	41.6	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table G3c-15. Sacramento/Delta Gross Revenues – Average Year, VA with Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	25.0	0.6	3.0	11.3	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.9	148.6	2.5	0.1	0.0	10.9	1.1	0.0	7.7	0.0	506.9	0.8	3.5	24.2	0.0	0.0	2.5	0.1	0.0	384.0	0.2
V03A	25.3	47.4	10.9	0.4	3.3	102.9	2.2	0.0	5.9	2.8	189.5	9.7	1.0	4.2	0.0	37.5	566.9	2.1	0.0	2.0	0.7
V03B	38.5	466.2	19.5	0.8	4.9	73.0	1.2	0.0	13.5	12.6	105.9	8.2	7.1	8.4	0.0	51.5	28.6	0.7	0.0	133.3	28.0
V04	6.4	17.9	14.1	0.4	0.9	139.9	13.5	0.9	8.6	0.0	189.8	9.9	0.9	1.2	0.0	23.6	182.5	1.9	0.0	0.0	0.0
V05	2.8	176.3	4.5	0.1	1.5	39.1	6.1	0.0	5.1	0.2	920.5	3.7	2.8	17.6	0.0	5.4	482.6	0.8	0.0	115.2	0.2
V06	113.8	40.1	27.7	0.0	0.0	63.9	5.2	11.7	35.7	8.5	199.4	38.7	15.9	24.3	0.0	109.6	43.5	4.4	0.0	15.5	14.7
V07	8.8	0.7	3.2	1.1	0.0	3.0	0.5	0.2	8.3	0.1	83.1	1.6	3.7	19.1	0.0	1.5	148.2	0.3	0.0	7.8	1.7
V08	41.5	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	137.9	10.4	110.4	70.0	0.0	64.3	5.5	35.5	31.0	2.7	151.3	30.0	68.9	42.6	27.5	99.4	10.4	17.7	0.0	15.3	168.5

Table G3c-16. Sacramento/Delta Gross Revenues – Average Year, VA Without Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.5	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	6.0	150.1	2.5	0.1	0.0	10.8	1.1	0.0	7.3	0.0	507.9	0.8	3.5	24.9	0.0	0.0	2.5	0.1	0.0	384.8	0.2
V03A	25.3	47.4	10.9	0.4	3.3	102.9	2.2	0.0	5.9	2.8	189.5	9.7	1.0	4.2	0.0	37.5	566.9	2.1	0.0	2.0	0.7
V03B	38.5	466.2	19.5	0.8	4.9	73.0	1.2	0.0	13.5	12.6	105.9	8.2	7.1	8.4	0.0	51.5	28.6	0.7	0.0	133.3	28.0
V04	6.4	17.9	14.1	0.4	0.9	139.9	13.5	0.9	8.6	0.0	189.8	9.9	0.9	1.2	0.0	23.6	182.5	1.9	0.0	0.0	0.0
V05	2.8	176.3	4.5	0.1	1.5	39.1	6.1	0.0	5.1	0.2	920.5	3.7	2.8	17.6	0.0	5.4	482.6	0.8	0.0	115.2	0.2
V06	114.6	40.4	27.8	0.0	0.0	63.9	5.2	11.7	34.6	8.5	199.6	38.7	15.9	24.7	0.0	109.9	43.9	4.3	0.0	15.6	14.8
V07	8.8	0.7	3.2	1.1	0.0	3.0	0.5	0.2	8.3	0.1	83.1	1.6	3.7	19.1	0.0	1.5	148.2	0.3	0.0	7.8	1.7
V08	41.5	19.9	30.6	31.2	0.0	24.5	5.2	23.1	14.6	5.4	568.9	5.9	26.2	26.2	0.0	52.7	7.7	0.3	0.0	16.1	715.5
V09	140.1	10.5	111.4	70.5	0.0	64.3	5.8	35.6	30.8	2.7	151.6	30.3	69.2	45.5	27.5	100.0	10.7	17.6	0.0	15.4	168.5

Table G3c-17. Sacramento/Delta Gross Revenues – Dry Year, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.2	0.0	25.1	0.6	3.0	11.7	0.0	0.0	0.0	0.0	0.0	13.3	0.9
V02	5.9	147.9	2.5	0.1	0.0	10.9	1.1	0.0	7.7	0.0	506.4	0.8	3.5	23.5	0.0	0.0	2.4	0.1	0.0	383.2	0.2
V03A	25.7	48.0	10.9	0.4	3.3	102.3	2.1	0.0	5.3	2.8	190.0	9.5	1.0	4.4	0.0	37.4	574.1	2.0	0.0	2.0	0.7
V03B	36.9	455.6	19.0	0.7	4.8	72.4	1.2	0.0	13.4	12.4	105.4	8.0	7.0	2.4	0.0	50.2	27.6	0.6	0.0	131.9	27.5
V04	6.5	18.1	14.1	0.4	0.9	139.6	13.5	0.9	7.2	0.0	190.3	9.8	0.8	1.4	0.0	25.4	185.4	1.9	0.0	0.0	0.0
V05	2.8	175.6	4.4	0.1	1.5	39.0	6.0	0.0	5.1	0.2	919.2	3.7	2.8	16.9	0.0	5.3	477.4	0.8	0.0	114.9	0.1
V06	110.8	38.8	27.3	0.0	0.0	64.0	5.2	11.6	37.5	8.4	198.4	38.6	15.9	22.8	0.0	108.6	41.7	4.4	0.0	15.4	14.7
V07	8.4	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.2	0.1	82.6	1.5	3.7	15.9	0.0	1.4	141.4	0.3	0.0	7.7	1.7
V08	39.8	19.3	29.2	30.3	0.0	24.4	3.1	22.8	15.1	5.3	564.7	5.8	26.0	19.2	0.0	51.2	5.5	0.3	0.0	15.8	710.5
V09	139.1	10.5	111.2	70.4	0.0	64.4	5.8	35.6	31.1	2.7	151.5	30.2	69.2	44.3	27.5	99.9	10.5	17.8	0.0	15.4	168.7

Table G3c-18. Sacramento/Delta Gross Revenues – Dry Year, VA with Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.4	0.0	25.0	0.6	3.0	11.3	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.9	147.7	2.5	0.1	0.0	10.9	1.1	0.0	7.7	0.0	506.2	0.8	3.5	23.3	0.0	0.0	2.4	0.1	0.0	382.9	0.2
V03A	25.3	47.5	10.9	0.4	3.3	102.9	2.2	0.0	5.8	2.8	189.6	9.7	1.0	4.2	0.0	37.6	567.9	2.1	0.0	2.0	0.7
V03B	36.9	455.5	18.9	0.7	4.8	72.4	1.2	0.0	13.4	12.4	105.4	8.0	7.0	1.7	0.0	50.2	27.6	0.6	0.0	131.9	27.5
V04	6.4	17.9	14.1	0.4	0.9	140.0	13.5	0.9	8.7	0.0	189.8	9.9	0.9	1.1	0.0	23.4	182.2	1.9	0.0	0.0	0.0
V05	2.7	174.7	4.3	0.1	1.5	38.8	5.9	0.0	5.1	0.2	917.5	3.6	2.8	15.5	0.0	5.1	468.9	0.8	0.0	114.4	0.1
V06	110.6	38.7	27.2	0.0	0.0	64.0	5.2	11.6	37.4	8.4	198.3	38.5	15.9	22.7	0.0	108.3	41.7	4.4	0.0	15.4	14.6
V07	8.4	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.2	0.1	82.6	1.5	3.7	15.4	0.0	1.4	140.9	0.3	0.0	7.7	1.7
V08	39.8	19.3	29.2	30.3	0.0	24.4	3.1	22.8	15.1	5.3	564.7	5.8	26.0	19.2	0.0	51.2	5.5	0.3	0.0	15.8	710.5
V09	136.8	10.4	109.7	69.7	0.0	64.2	5.3	35.4	30.8	2.7	151.1	29.9	68.6	40.5	27.4	99.0	10.2	17.7	0.0	15.3	168.4

Table G3c-19. Sacramento/Delta Gross Revenues – Dry Year, VA Without Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V01	1.0	0.2	0.0	0.0	0.0	1.1	0.0	0.0	1.3	0.0	25.1	0.6	3.0	11.5	0.0	0.0	0.0	0.0	0.0	13.2	0.9
V02	5.9	147.9	2.5	0.1	0.0	10.9	1.1	0.0	7.7	0.0	506.3	0.8	3.5	23.5	0.0	0.0	2.4	0.1	0.0	383.1	0.2
V03A	25.3	47.5	10.9	0.4	3.3	102.9	2.2	0.0	5.8	2.8	189.6	9.7	1.0	4.2	0.0	37.6	567.9	2.1	0.0	2.0	0.7
V03B	36.9	455.5	18.9	0.7	4.8	72.4	1.2	0.0	13.4	12.4	105.4	8.0	7.0	1.7	0.0	50.2	27.6	0.6	0.0	131.9	27.5
V04	6.4	17.9	14.1	0.4	0.9	139.9	13.5	0.9	8.5	0.0	189.9	9.9	0.9	1.2	0.0	23.8	182.8	1.9	0.0	0.0	0.0
V05	2.7	174.7	4.3	0.1	1.5	38.8	5.9	0.0	5.1	0.2	917.5	3.6	2.8	15.5	0.0	5.1	468.9	0.8	0.0	114.4	0.1
V06	110.6	38.7	27.2	0.0	0.0	64.0	5.2	11.6	37.4	8.4	198.3	38.5	15.9	22.7	0.0	108.3	41.7	4.4	0.0	15.4	14.6
V07	8.4	0.7	3.0	1.0	0.0	2.9	0.4	0.2	8.2	0.1	82.6	1.5	3.7	15.4	0.0	1.4	140.9	0.3	0.0	7.7	1.7
V08	39.8	19.3	29.2	30.3	0.0	24.4	3.1	22.8	15.1	5.3	564.7	5.8	26.0	19.2	0.0	51.2	5.5	0.3	0.0	15.8	710.5
V09	139.1	10.5	111.2	70.4	0.0	64.4	5.8	35.6	31.1	2.7	151.5	30.2	69.1	44.3	27.5	99.8	10.5	17.8	0.0	15.4	168.7

San Joaquin Valley Gross Revenues

Table G3c-20. San Joaquin Valley Gross Revenues – Average Year, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	221.1	273.9	7.8	65.3	156.1	250.2	38.0	181.7	6.2	30.9	228.6	157.2	100.5	15.7	1.3	197.1	8.0	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	188.0	899.8	18.6	119.4	46.8	18.6	0.2	48.5	27.6	0.7	232.4	75.6	142.4	20.0	1.3	53.9	4.7	0.3	1.1	90.9	776.9
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	255.6	464.6	32.1	273.8	93.0	8.6	11.5	3.4	38.0	2.1	574.8	239.6	34.5	2.0	1.4	3.4	0.0	0.0	0.0	1,968.9	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.7	1.8	0.0	5.6	17.3	0.2	1.1	8.8	15.0	78.3	5.2	79.7	0.0	73.7	7.1	0.0	0.2	0.0	268.7	237.6
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table G3c-21. San Joaquin Valley Gross Revenues – Average Year, VA with Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.5	273.4	7.8	65.6	156.2	251.5	38.4	182.0	6.3	30.9	228.5	157.7	101.4	15.1	1.3	197.6	7.9	1.7	0.0	12.2	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.2	899.6	18.7	119.8	46.8	18.7	0.2	48.8	28.1	0.7	232.4	76.0	143.7	19.2	1.3	54.1	4.7	0.3	1.1	91.0	777.4
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.2	450.6	14.9	108.1	297.2	3.7	4.8	13.5	75.6	68.2	422.7	132.4	23.7	5.9	0.0	182.6	0.0	4.1	0.0	9.2	409.8
V15B	1.1	94.7	0.0	0.0	4.9	5.0	0.0	0.0	3.9	0.0	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.0	176.7	1.7	4.2	2.2	0.0	0.0	0.0	6.7	0.0	90.7	0.0	79.7	6.5	0.0	0.0	0.0	0.0	0.0	250.9	383.0
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.8	537.5
V18	253.9	464.0	31.9	272.4	92.8	8.6	11.5	3.4	38.0	2.1	574.3	238.5	34.6	0.1	1.4	3.4	0.0	0.0	0.0	1,967.5	316.5
V19A	1.5	518.5	0.6	0.0	5.8	3.6	0.0	2.1	18.5	2.7	103.2	0.0	30.0	0.0	0.0	1.5	0.0	0.0	0.0	42.5	15.7
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.6	1.7	0.0	5.6	17.2	0.2	1.1	8.7	14.9	78.2	5.1	79.6	0.0	73.7	7.1	0.0	0.2	0.0	268.4	237.2
V21C	8.8	48.7	1.2	0.0	16.8	9.6	0.0	0.0	2.9	18.4	52.6	0.0	31.1	0.0	9.5	0.0	0.0	0.0	0.0	315.5	85.3

Table G3c-22. San Joaquin Valley Gross Revenues – Average Year, VA Without Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.5	273.4	7.8	65.6	156.2	251.5	38.4	182.0	6.3	30.9	228.5	157.7	101.4	15.1	1.3	197.6	7.9	1.7	0.0	12.2	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	187.6	899.6	18.6	119.6	46.8	18.6	0.2	48.6	27.9	0.7	232.4	75.8	143.1	19.6	1.3	54.0	4.7	0.3	1.1	91.0	777.2
V14A	35.9	764.2	3.4	11.3	136.8	280.3	8.6	59.1	97.7	153.1	78.8	31.5	199.4	0.0	0.0	316.2	0.0	0.6	0.0	50.5	93.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.4	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	227.7	451.5	15.0	108.9	298.3	3.7	4.9	13.5	75.5	68.4	423.3	133.4	23.7	14.5	0.0	183.3	0.0	4.2	0.0	9.2	410.6
V15B	1.1	94.8	0.0	0.0	4.9	5.0	0.0	0.0	3.8	0.0	36.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.9
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.2	50.9	10.4	0.0	8.4	0.0	0.0	0.0	865.6	537.1
V18	254.9	464.4	32.1	273.6	92.9	8.7	11.5	3.4	38.1	2.1	574.6	239.6	34.6	1.8	1.4	3.4	0.0	0.0	0.0	1,968.7	316.9
V19A	1.6	522.0	0.8	0.0	5.9	3.7	0.0	2.1	19.0	2.8	103.6	0.0	30.2	0.0	0.0	1.5	0.0	0.2	0.0	42.7	15.9
V19B	110.7	344.1	4.1	35.5	62.0	0.0	0.0	2.1	18.6	4.9	13.7	12.2	7.2	0.0	0.0	4.6	0.0	0.0	1.1	6.1	34.0
V20	44.4	646.2	10.3	0.0	9.0	0.0	2.9	1.1	13.5	3.3	78.8	3.8	43.9	0.0	2.7	2.5	0.0	0.0	0.0	553.1	279.0
V21A	152.0	100.3	99.7	0.0	61.9	5.0	2.8	2.1	20.6	12.8	6.3	13.0	36.5	0.0	6.8	51.1	0.0	1.1	0.0	0.0	38.7
V21B	2.4	76.6	1.8	0.0	5.6	17.3	0.2	1.1	8.7	14.9	78.2	5.1	79.6	0.0	73.7	7.1	0.0	0.2	0.0	268.5	237.3
V21C	9.6	49.4	2.0	0.0	17.2	9.8	0.0	0.0	3.1	18.9	52.9	0.0	31.5	0.0	9.5	0.0	0.0	0.3	0.0	317.8	86.5

Table G3c-23. San Joaquin Valley Gross Revenues – Dry Year, Existing Conditions ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	219.0	273.3	7.8	65.6	156.2	251.9	38.5	182.0	6.4	30.9	228.5	157.9	101.7	14.9	1.3	197.8	7.8	1.7	0.0	12.3	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	185.5	895.3	18.5	118.9	46.6	18.7	0.2	48.7	28.1	0.7	232.1	75.2	143.5	4.3	1.3	53.7	4.5	0.3	1.1	90.7	776.7
V14A	0.0	724.0	0.0	8.0	111.3	255.0	0.0	58.6	82.1	146.4	76.1	0.0	196.8	0.0	0.0	272.3	0.0	0.0	0.0	45.0	86.2
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.2	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.7	450.8	14.9	108.4	297.4	3.7	4.8	13.5	75.7	68.2	422.8	132.7	23.7	11.7	0.0	182.8	0.0	4.1	0.0	9.2	410.0
V15B	0.0	87.2	0.0	0.0	2.8	3.9	0.0	0.0	0.1	0.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.5
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	233.1	458.6	26.9	248.0	90.4	8.4	9.0	3.4	36.5	2.1	570.4	213.7	34.1	0.0	1.3	3.3	0.0	0.0	0.0	1,951.1	310.9
V19A	0.0	476.2	0.0	0.0	0.0	2.3	0.0	2.0	0.0	1.1	99.8	0.0	27.8	0.0	0.0	1.2	0.0	0.0	0.0	40.6	14.1
V19B	104.9	342.0	1.9	31.9	61.2	0.0	0.0	2.1	17.8	4.9	13.7	10.7	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	38.8	642.0	0.0	0.0	8.8	0.0	2.6	1.0	13.0	3.2	78.5	0.0	43.5	0.0	2.7	2.5	0.0	0.0	0.0	550.5	276.1
V21A	146.1	99.6	92.1	0.0	60.9	4.9	2.7	2.1	20.1	12.6	6.3	12.3	36.3	0.0	6.8	50.6	0.0	0.7	0.0	0.0	38.5
V21B	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	74.1	0.0	71.7	0.0	70.6	4.0	0.0	0.0	0.0	252.8	205.9
V21C	2.4	48.0	0.0	0.0	16.2	9.2	0.0	0.0	2.6	17.8	52.3	0.0	30.7	0.0	9.4	0.0	0.0	0.0	0.0	313.6	84.3

Table G3c-24. San Joaquin Valley Gross Revenues – Dry Year, VA with Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	217.3	272.2	7.8	65.3	155.8	251.6	38.2	182.0	6.4	30.8	228.3	156.5	101.6	14.6	1.3	197.1	7.7	1.7	0.0	12.2	45.3
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	185.5	895.3	18.5	118.9	46.6	18.7	0.2	48.7	28.1	0.7	232.1	75.2	143.5	3.9	1.3	53.7	4.5	0.3	1.1	90.7	776.7
V14A	0.0	720.3	0.0	8.0	105.1	252.1	0.0	58.6	78.9	145.9	75.9	0.0	196.6	0.0	0.0	264.7	0.0	0.0	0.0	44.4	85.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.2	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	224.5	450.3	14.8	107.8	296.7	3.7	4.8	13.5	75.5	68.2	422.5	131.9	23.7	0.0	0.0	182.3	0.0	4.1	0.0	9.2	409.4
V15B	0.0	87.2	0.0	0.0	2.8	3.9	0.0	0.0	0.6	0.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.5
V16	19.0	176.7	1.7	4.2	2.2	0.0	0.0	0.0	6.8	0.0	90.6	0.0	79.8	6.3	0.0	0.0	0.0	0.0	0.0	251.1	383.9
V17	20.6	68.7	4.4	24.4	1.0	6.2	0.3	0.0	3.0	0.7	877.3	13.2	51.1	9.7	0.0	8.4	0.0	0.0	0.0	864.9	536.9
V18	233.0	458.6	26.9	247.9	90.4	8.4	9.0	3.4	36.5	2.1	570.4	213.6	34.1	0.0	1.3	3.3	0.0	0.0	0.0	1,951.1	310.9
V19A	0.0	477.7	0.0	0.0	1.6	2.4	0.0	2.0	0.0	1.3	99.9	0.0	27.8	0.0	0.0	1.2	0.0	0.0	0.0	40.6	14.1
V19B	105.1	342.0	2.2	32.0	61.2	0.0	0.0	2.1	17.8	4.9	13.7	10.8	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	38.9	642.0	0.0	0.0	8.8	0.0	2.6	1.0	13.0	3.2	78.5	0.0	43.5	0.0	2.7	2.5	0.0	0.0	0.0	550.5	276.1
V21A	146.3	99.6	92.4	0.0	61.0	4.9	2.7	2.1	20.1	12.6	6.3	12.4	36.3	0.0	6.8	50.6	0.0	0.8	0.0	0.0	38.5
V21B	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	74.2	0.0	71.7	0.0	70.7	4.0	0.0	0.0	0.0	252.9	206.0
V21C	2.9	48.0	0.0	0.0	16.2	9.2	0.0	0.0	2.6	17.8	52.3	0.0	30.7	0.0	9.4	0.0	0.0	0.0	0.0	313.6	84.3

Table G3c-25. San Joaquin Valley Gross Revenues – Dry Year, VA Without Unspecified Water Purchases ($ millions)

SWAP Region	Alfalfa	Almonds & Pistachios	Corn	Corn Silage	Cotton	Cucurbits	Dry Beans	Fresh Tomatoes	Grain	Onions and Garlic	Other Deciduous	Other Field	Other Truck	Pasture	Potatoes	Processing Tomatoes	Rice	Safflower	Sugar Beets	Subtropical	Vine
V10	218.6	273.0	7.8	65.6	156.1	251.8	38.4	182.0	6.4	30.9	228.4	157.5	101.6	14.8	1.3	197.6	7.8	1.7	0.0	12.2	45.4
V11	32.1	456.4	11.8	57.7	0.0	12.3	1.1	0.7	3.9	6.6	343.2	42.1	57.2	26.3	0.0	2.4	13.1	0.2	0.0	45.5	98.0
V12	69.9	569.1	5.7	125.2	0.0	8.6	3.1	4.9	2.5	0.0	170.4	77.4	93.1	10.0	0.0	0.0	0.0	0.0	0.0	1.7	64.3
V13	185.5	895.3	18.5	118.9	46.6	18.7	0.2	48.7	28.1	0.7	232.1	75.2	143.5	4.2	1.3	53.7	4.5	0.3	1.1	90.7	776.7
V14A	0.0	720.3	0.0	8.0	105.1	252.1	0.0	58.6	78.9	145.9	75.9	0.0	196.6	0.0	0.0	264.7	0.0	0.0	0.0	44.4	85.5
V14B	0.3	47.4	0.1	0.8	7.7	6.2	0.0	0.0	7.5	52.7	4.4	26.2	74.1	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
V15A	225.7	450.8	14.9	108.4	297.4	3.7	4.8	13.5	75.7	68.2	422.8	132.7	23.7	11.7	0.0	182.8	0.0	4.1	0.0	9.2	410.0
V15B	0.0	87.2	0.0	0.0	2.8	3.9	0.0	0.0	0.6	0.0	34.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.5
V16	19.3	176.7	1.7	4.1	2.2	0.0	0.0	0.0	6.5	0.0	90.7	0.0	79.3	7.0	0.0	0.0	0.0	0.0	0.0	250.6	381.4
V17	20.8	68.9	4.4	24.5	1.0	6.2	0.3	0.0	3.0	0.7	878.4	13.3	51.0	10.2	0.0	8.4	0.0	0.0	0.0	865.9	537.5
V18	233.0	458.6	26.9	247.9	90.4	8.4	9.0	3.4	36.5	2.1	570.4	213.6	34.1	0.0	1.3	3.3	0.0	0.0	0.0	1,951.1	310.9
V19A	0.0	477.7	0.0	0.0	1.6	2.4	0.0	2.0	0.0	1.3	99.9	0.0	27.8	0.0	0.0	1.2	0.0	0.0	0.0	40.6	14.1
V19B	105.1	342.0	2.2	32.0	61.2	0.0	0.0	2.1	17.8	4.9	13.7	10.8	7.2	0.0	0.0	4.5	0.0	0.0	1.1	6.1	33.7
V20	38.9	642.0	0.0	0.0	8.8	0.0	2.6	1.0	13.0	3.2	78.5	0.0	43.5	0.0	2.7	2.5	0.0	0.0	0.0	550.5	276.1
V21A	146.3	99.6	92.4	0.0	61.0	4.9	2.7	2.1	20.1	12.6	6.3	12.4	36.3	0.0	6.8	50.6	0.0	0.8	0.0	0.0	38.5
V21B	0.0	64.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	74.2	0.0	71.7	0.0	70.7	4.0	0.0	0.0	0.0	252.9	206.0
V21C	2.9	48.0	0.0	0.0	16.2	9.2	0.0	0.0	2.6	17.8	52.3	0.0	30.7	0.0	9.4	0.0	0.0	0.0	0.0	313.6	84.3

G3c.2 Regional Economic Analysis Modeling Procedure

G3c.2.1 Introduction

A regional economic analysis was conducted to illustrate how changes in water supply and resulting changes at the local agricultural economy would affect total regional economic activity in the Sacramento/Delta watershed and the state as a whole. The regional economic analysis estimates how changes in agricultural production (crops) could affect total industry output (sales), personal income, and employment in a regional economy via changes in direct expenditures for agricultural inputs, including payments to labor and net income. Regional economic effects were estimated for the proposed VAs using economic impact models constructed using IMPLAN software designed to trace economic effects over two geographic areas of interest.

Appendix A4, *Regional Economic Analysis Modeling Procedure*, provides details on the IMPLAN modeling platform, modeling construction, terminology, and the measures of changes in economic activity resulting from changes in commercial crop production. The analytical steps outlined in Section A4.2, *Analytical Steps*, of Appendix A4 also apply to the proposed VA model runs.

G3c.2.2 Modeling Process for Proposed Voluntary Agreements

Estimated expenditures on agricultural inputs are obtained from the SWAP model for the 21 representative crops in response to production shifts due to implementation of the proposed VAs. The SWAP model expenditures were aligned (mapped) onto payments to underlying agricultural input supply businesses, labor hiring, and net income. After adjustment to producer price terms, these expenditures were treated as *direct effects* and run through the IMPLAN economic impact model.

A feature of the proposed VAs is the compensation payment to growers who voluntarily participate in the water purchase programs. Participation in the water purchase program could result in reduced agricultural production from willing sellers, with an increase in income due to the monetary compensation for the water purchases. The compensation received represents an increase in proprietor income. The IMPLAN models developed for the proposed VAs contain an additional direct effect associated with compensation for both specified as well as unspecified water purchases. The compensation is assumed to be provided to growers who forego irrigation under the terms of the proposed VAs, and the amount is entered into the models as additional "proprietor's income." The compensation rate for water right purchases in the proposed VAs is unknown and likely would vary by water year type and other factors; however, for the purposes of the regional modeling, a rate of $400 per AF was assumed. This rate is consistent with market prices for surface water in the Central Valley; rates have been higher and lower than $400 per AF and vary significantly with hydrology. The selected unit price also is consistent with the proposed pricing for crop fallowing agreements in DWR's LandFlex Grant Program (DWR 2023), as well as pricing for average water years under multi-year water purchase agreements.

G3c.2.2.1 Sacramento/Delta Regional Model

The SWAP model results for the proposed VAs that are presented in this appendix include output details on the quantity of water used by supply source and provide estimates of the potential

distribution of VA water purchases based on SWAP economic modeling. Table G3c-26 estimates that the water purchase volumes that could originate from the Sacramento/Delta could average 40,824 AF/yr. This volume times $400, or $16,329,600, is the assumed total amount of compensation represented as the "proprietor's income" in the Sacramento/Delta Regional Model.

The IMPLAN Social Accounting Matrix data set was used to estimate the percentage income that enters and is re-spent in the modeled region. For the Sacramento/Delta model region, the direct payments for water purchases were scaled down (reduced) to account for the fact that the IMPLAN data set indicates (1) 95.7 percent of proprietors' income finds its way to Sacramento/Delta region households; and (2) 55.6 percent of household income gets spent in Sacramento/Delta region, thereby supporting regional economic activity; the remainder of the proprietor and household income is "leakage" from the regional economy. After accounting for these adjustments, the direct income change used as input to the Sacramento/Delta Regional Model is $8,688,850.

G3c.2.2.2 State of California Model

Table G3c-26 estimates that the water purchase volumes that could originate from the Sacramento/Delta and San Joaquin Valley could average 165,165 AF/yr. This volume times $400, or $66,066,000, is the assumed total amount of compensation represented as the "proprietor's income" in the State of California Model.

The IMPLAN Social Accounting Matrix data set was used to estimate the percentage income that enters and is re-spent in the modeled region. For the State of California Model, the direct payments for water purchases were scaled down to account for the fact that the IMPLAN data set indicates (1) 95.8 percent of proprietors' income finds its way to California households; and (2) 58.1 percent of household income gets spent in California, thereby supporting regional economic activity; the remainder of the proprietor and household income is "leakage" from the state's regional economy. After accounting for these adjustments, the direct income change used as input to the State of California Regional Model is $36,772,204.

The results presented consist of combined direct, indirect, and induced effects on business, household, and government sectors in the relevant geographic region (Sacramento/Delta or State of California) resulting from backward linkages with agricultural production activities and compensation of water right holders for purchased water rights. Metrics are expressed as changes in output (sales), personal income, and employment (jobs) relative to the levels attributable to baseline condition agricultural activity in the region.

G3c.2.3 Detailed Results: Sacramento/Delta

Table G3c-26. Estimated Economic Effects for the Proposed VAs Compared with Existing Conditions due to Modeled Changes in Agricultural Production and Compensated Water Purchases, in the Sacramento/Delta Region Economy

	Change in:			Percent Change in:		
Industry/Section	Output ($ mil.)	Income ($ mil.)	No. of Jobs	Output	Income	No. of Jobs
Proposed Voluntary Agreements (compensated water purchases included)						
Agriculture	-24	-23	-407	-0.4%	-0.4%	-0.4%
Other Natural Resources & Mining	-6	-4	-87	-0.5%	-0.5%	-0.5%
Utilities	-1	-0	-3	-0.3%	-0.3%	-0.3%
Construction	-3	-0	-3	-0.6%	-0.6%	-0.6%
Food Processing	-0	-0	-0	-0.3%	-0.2%	-0.2%
Other Non-Durables Manufacturing	-4	-0	-2	-0.5%	-0.5%	-0.5%
Durables Manufacturing	-0	-0	-0	-0.3%	-0.3%	-0.3%
Transportation & Warehousing	-2	-1	-9	-0.4%	-0.4%	-0.4%
Wholesale Trade	-1	-0	-6	-0.3%	-0.3%	-0.3%
Retail Trade	-3	-1	-34	-0.3%	-0.3%	-0.3%
Information & Communications Services	-1	-0	-2	-0.3%	-0.3%	-0.3%
Finance, Insurance, & Real Estate Services	-5	-1	-21	-0.3%	-0.3%	-0.3%
Legal, Rental, Professional, Scientific, Mgt & Tech Services	-5	-2	-32	-0.3%	-0.3%	-0.3%
Employment, Administrative, & Waste Services	-1	-0	-11	-0.3%	-0.3%	-0.3%
Education, Health & Social Services	-2	-1	-22	-0.2%	-0.2%	-0.2%
Arts, Entertainment & Recreation Services	-0	-0	-3	-0.2%	-0.2%	-0.2%
Accommodation & Food Service	-1	-0	-13	-0.2%	-0.2%	-0.2%
Other Services	-2	-1	-15	-0.3%	-0.3%	-0.3%
Government & Miscellaneous	-5	-2	-21	-0.3%	-0.3%	-0.3%
Water Purchases	*+9*	*+9*	*+138*			
Totals	-55	-29	-552	-0.3%	-0.3%	-0.3%
Total Full-Time Equivalent Jobs	-	-	*-517*	-	-	*-0.3%*

Combined direct, indirect, and induced effects on business, household, and government sectors in the Sacramento/Delta regional economy attributable to backward linkage effects of modeled agricultural production activities, expressed as change relative to estimated effects of baseline (existing) condition agricultural activity.

G3c.2.4 Detailed Results: State of California

Table G3c-27. Estimated Economic Effects for the Proposed VAs Compared with Existing Conditions due to Modeled Changes in Agricultural Production and Compensated Water Purchases, California Statewide Economy

	Change in:			Percent Change in:		
Industry/Section	Output ($ mil.)	Income ($ mil.)	No. of Jobs	Output	Income	No. of Jobs
Proposed Voluntary Agreements (compensated water purchases included)						
Agriculture	-37	-36	-548	-0.2%	-0.2%	-0.2%
Other Natural Resources & Mining	-9	-5	-131	-0.2%	-0.2%	-0.2%
Utilities	-1	-0	-6	-0.2%	-0.2%	-0.2%
Construction	-13	-3	-15	-0.7%	-0.7%	-0.7%
Food Processing	-0	+0	+0	-0.0%	+0.0%	+0.0%
Other Non-Durables Manufacturing	-7	-0	-4	-0.2%	-0.1%	-0.1%
Durables Manufacturing	-0	-0	-1	-0.1%	-0.1%	-0.1%
Transportation & Warehousing	-2	-1	-9	-0.1%	-0.1%	-0.1%
Wholesale Trade	-1	-0	-5	-0.1%	-0.1%	-0.1%
Retail Trade	-2	-1	-23	-0.1%	-0.1%	-0.1%
Information & Communications Services	-1	-0	-1	-0.0%	-0.0%	-0.0%
Finance, Insurance, & Real Estate Services	-3	-1	-12	-0.1%	-0.1%	-0.1%
Legal, Rental, Professional, Scientific, Mgt & Tech Services	-7	-4	-43	-0.1%	-0.1%	-0.1%
Employment, Administrative, & Waste Services	-1	-0	-7	-0.1%	-0.1%	-0.1%
Education, Health & Social Services	+1	+0	+9	+0.0%	+0.0%	+0.0%
Arts, Entertainment & Recreation Services	+0	+0	+1	+0.0%	+0.0%	+0.0%
Accommodation & Food Service	+0	+0	+2	+0.0%	+0.0%	+0.0%
Other Services	-1	-0	-4	-0.0%	-0.0%	-0.0%
Government & Miscellaneous	-7	-3	-29	-0.1%	-0.2%	-0.2%
Water Purchases	*+37*	*+37*	*+475*			
Totals	-54	-19	-353	-0.1%	-0.1%	-0.1%
Total Full-Time Equivalent Jobs	-	-	*-289*	-	-	*-0.1%*

Combined direct, indirect, and induced effects on business, household, and government sectors in the California statewide economy attributable to backward linkage effects of modeled agricultural production activities, expressed as change relative to estimated effects of baseline (existing) condition agricultural activity.

G3c.3 References

G3c.3.1 Common References

^Voluntary Agreements Parties. 2022. Memorandum of Understanding Advancing a Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and Other Related Actions. California Natural Resource Agency, California Environmental Protection Agency, California Department of Water Resources, California Department of Fish and Wildlife, and Yuba County Water Agency.

G3c.3.2 Section References

California Department of Water Resources (DWR). 2023. "Landflex." Website: https://water.ca.gov/landflex. Accessed: August 27, 2023.