

Appendix H

Socioeconomics Data

This appendix includes detailed information that supports the analysis contained in Section 4.14 (Socioeconomics) of the EIS. The analysis in Section 4.14 is based on a network of models. The Shortage Allocation Model (described in Appendix G of the Final EIS) was used to generate shortages, which served as input to an agricultural model. The agricultural model contains crop budgets and crop growing patterns that were used to assess the effect of shortages on crop acres and production. Arizona agricultural cropping patterns and crop budgets included in the analysis are displayed on Tables H-1 through H-19. The change in gross dollar output determined in the agricultural model were used as an input to the economic model “IMPLAN”, which produced a detailed breakdown of estimated changes in employment, income, and tax revenues for each county by shortage amount and year evaluated (Tables H-20 through H-147).

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H.1 Introduction

This appendix supports the agricultural analysis in Section 4.14 (Socioeconomics) of the EIS. Indian and non-Indian agricultural shortages were generated in the Shortage Allocation Model. The results are incorporated in an agricultural model, which determines the quantity of acres within a district which will go out of production based on crop budgets and production patterns. The agricultural model produces the estimated reduction in crops by acre and a reduction in gross dollar output. The change in gross dollar output is then used as an input to IMPLAN to ascertain changes in employment, personal income, and tax revenues by county. The output of both the Shortage Allocation Model and the agricultural model must be summarized by county in order for IMPLAN to operate.

Listed below are the counties analyzed in IMPLAN. For informational purposes, the irrigation districts and Indian communities contained within those counties are also listed below. Pinal, Maricopa, and Pima Counties contain the majority of Central Arizona Project irrigation districts and Indian communities. Mohave, La Paz, and Yuma Counties contain the majority of individual entitlement holders along the Colorado River. When an irrigation district, Indian community, or entitlement holder crosses a county line, the analysis is distributed proportionately to the estimated use in each county:

- ◆ Mohave
- ◆ La Paz
- ◆ Yuma
- ◆ Pinal:
 - Maricopa-Stanfield Irrigation & Drainage District (MSIDD)
 - Central Arizona Irrigation and Drainage District (CAIDD)
 - San Carlos Irrigation and Drainage District (SCIDD)
 - Hohokam Irrigation and Drainage District (HIDD)
 - New Magma Irrigation and Drainage District (NMIDD)
 - Tohono O’odham Nation (TON) – Chui Chu District
 - Gila River Indian Community (GRIC)
- ◆ Maricopa:
 - Queen Creek Irrigation District (QCID)
 - Harquahala Valley Irrigation District (HVID)
 - Tonopah Irrigation District (TID)
 - Salt River Pima-Maricopa Community

Fort McDowell Yavapai Nation

◆ Pima: Tohono O’odham Nation - Schuk Toak and San Xavier Districts

H.2 Arizona Cropping Patterns

Historic cropping patterns for the major districts in Arizona are summarized in Table H-1.

Irrigation Districts ¹	Cotton	Grains	Forage	Vegetables	Trees	Totals
MSIDD	27,862	18,154	8,711	3,106	3,886	61,719
CAIDD	28,546	22,823	2,957	3,116	2,281	59,723
HIDD	12,817	8,627	3,632	632	0	25,708
NMIDD	9,042	5,107	5,449	1,808	1,855	23,261
QCID	5,258	3,847	2,532	2,632	368	14,637
HVID	13,419	3,109	3,709	3,709	505	24,451
TID	2,453	22	546	0	0	3,021
Totals	99,397	61,689	27,536	15,003	8,895	212,520

¹ See Section H.1 for Irrigation District names and acronyms.

H.3 Crop Budgets for Arizona Counties

H.3.1 Partial Crop Budgeting and Impacts Upon Crop Selection due to Water Cost and Water Shortages

This analysis is referred to as partial crop budgeting for two reasons. The first reason is that only aggregated costs and returns are presented for each crop, with essentially little detail regarding the composition of the values. Secondly, as explained below, not all costs of production are taken into consideration; the emphasis is primarily on variable or cash costs. Partial crop budget tables are located at the end of this text.

Partial crop budgets were generated for upland cotton, forage crops, and food and feed grains. This analysis focuses on these categories of crops because these crops are historically the first affected by water availability. Such crops may be subject to elimination from a crop rotation in any given year as the availability of irrigation water changes.

Theoretical economic production assumptions were applied in developing the partial budgets. The first assumption is that farmers will continue to produce a particular crop only as long as the returns from the crop cover all variable costs and contribute something toward fixed costs. For the partial crop budget analysis, the intent is to identify only the variable production costs or only those costs which a farmer in Arizona is assumed to include when making the decision whether to continue to produce a particular crop in the face of declining

water availability. The goal of the partial crop budget analysis is to estimate a set of cost and return values that represent typical farm operations in various districts although it is recognized that each farmer is faced with unique production costs, realized yields, and crop prices. The partial crop budgets provide what is assumed to be the typical costs and returns faced by a range of farmers in the counties included in this analysis. The outcome provided by the partial budgets is identification of the cost of irrigation water at which farmers, on the average, would decide to fallow fields of a particular crop because the returns failed to cover the variable costs of production. It is assumed that, if each farmer's production costs and prices were used, on the average, the impacts would be similar to those resulting from this analysis.

University of Arizona 1998 crop enterprise budgets were used as the starting point for the partial crop budget analysis. Costs of farming inputs (equipment maintenance, fertilizer application, fuel, etc.) were adjusted to reflect 2005 costs using cost indices available from the National Agricultural Statistics Service. Average commodity prices and yields over a five-year period, from 2001 to 2005, were the basis for gross revenues. The total cash cost for land preparation and growing expenses including irrigation water costs, and total harvest and post-harvest costs developed by the University of Arizona were used in this analysis. Costs which were specifically excluded from the analysis include farm pickup use costs for a particular crop, taxes, housing, insurance on farm equipment, capital replacement on machinery and vehicles, interest on equity in machinery and vehicles, property taxes, opportunity interest on land, water assessment, returns to management, and profit.

The values derived are not indicative of the profitability of a particular crop. The values are intended to represent a marginal analysis relative to farmers' growing decisions. For example, the crop profitability decision value for wheat in Maricopa County is shown to be \$59.55 per acre. The \$59.55 represents the revenues above variable expenses that contribute to payment of fixed costs of the farming operation. To the \$59.55 is added the current estimated irrigation water cost. Total estimated irrigation water cost plus the profitability decision value is then divided by the acre-feet of water applied per acre to calculate the threshold value. The threshold value for wheat in Maricopa County is \$23.96. The threshold value is the maximum amount a farmer would pay for water to irrigate wheat or at what point he would decide to not include wheat in his rotation. In this study, a farmer is assumed not to consider all economic costs when deciding whether to grow a particular crop. This assumption is based on historic agricultural production practices and decision making in the Lower Basin states. In addition, the economic costs associated with total farm production are unique to each farm operation. The values used in this analysis represent average conditions for farms in the counties included in this study.

Tables H-3 through H-20 show the partial budgeting results. In summary, the estimated maximum average amount a farmer would pay for irrigation water per acre foot is shown in Table H-2, below.

Table H-2
Estimated Maximum Average Amount a
Farmer Would Pay for Irrigation Water

Crop	County	Max Amount Paid for Irrigation Water (\$/af)
Wheat	Pinal	\$25.84
	Maricopa	\$23.96
	Pima ¹	\$25.84
	La Paz	\$10.98
	Mojave	\$44.88
	Yuma	\$16.77
Cotton	Pinal	\$70.48
	Maricopa	\$40.56
	Pima ¹	\$70.48
	La Paz	\$42.23
	Mojave	\$54.84
	Yuma	\$46.43
Alfalfa Hay	Pinal	\$66.55
	Maricopa	\$40.35
	Pima ¹	\$66.55
	La Paz	\$56.83
	Mojave	\$32.70
	Yuma	\$69.37

¹ Partial farm budget information not available for Pima County. Assumed maximum amount paid for irrigation water would be similar to that of Pinal County.

The differences in the wheat estimates between counties are due mainly to yield differences and required water assumptions. For cotton, the differences in estimates between counties are also due to yield differences and required water assumptions. In Pinal County, the first crop projected to drop out of production is wheat, followed by alfalfa, and then cotton, given increasing irrigation water costs or water shortages and assuming that all other variables remained unchanged.

Table H-3
Hay and Forage Production Profitability in Maricopa County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 8.3, price per ton = \$102.20)	\$850.30
Total cash growing costs (includes \$112.50 for irrigation water)	\$319.62
Cash harvest costs	\$207.97
Interest on operating costs at 10%	\$15.98
Total cash expenses	\$543.56
General and office overhead—5% of operating expenses	\$27.18
General farm maintenance—3% of operating expense	\$16.31
Share of stand establishment	\$73.13
Total variable costs	\$660.18
Crop returns over variable costs	\$190.13
Annual crop water use— 90 acre-inches or 7.50 af	
Returns to crop and water over variable costs	\$302.63
Maximum average amount a farmer would pay for irrigation water per af	\$40.35

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-4
Food and Feed Grain Production Profitability in Maricopa County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 5,578, price per pound = \$0.071)	\$396.04
Total cash growing costs (includes \$8.33 for irrigation water)	\$220.70
Cash harvest costs	\$79.83
Interest on operating costs at 10%	\$11.03
Total cash expenses	\$311.57
General and office overhead—5% of operating expenses	\$15.58
General farm maintenance—3% of operating expense	\$9.35
Total variable costs	\$336.49
Crop returns over variable costs	\$59.55
Annual crop water use— 34 acre-inches or 2.83 af	
Returns to crop and water over variable costs	\$67.88
Maximum average amount a farmer would pay for irrigation water per af	\$23.96

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-5
Upland Cotton Production Profitability in Maricopa County—Partial Budget

	Total
Crops sales revenues—Cotton Lint (yield in pounds = 1,298, price per pound = \$0.636)	\$825.53
Crops sales revenues—Cottonseed (yield in tons = 1.14, price per ton = \$142.00)	\$161.88
Total revenues	\$987.41
Total cash growing costs (includes \$30.00 for irrigation water)	\$453.41
Cash harvest costs	\$275.07
Interest on operating costs at 10%	\$22.67
Total cash expenses	\$751.15
General and office overhead—5% of operating expenses	\$37.56
General farm maintenance—3% of operating expense	\$22.53
Total variable costs	\$811.24
Crop returns over variable costs	\$176.17
Annual crop water use— 61 acre-inches or 5.08 af	
Returns to crop and water over variable costs	\$206.17
Maximum average amount a farmer would pay for irrigation water per af	\$40.56

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-6
Hay and Forage Production Profitability in Pinal County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 8.86, price per ton = \$102.20)	\$905.49
(grazing = 250 hd, cents per hd = \$0.13)	\$32.50
Total revenues	\$937.99
Total cash growing costs (includes \$237.00 for irrigation water)	\$354.89
Cash harvest costs	\$231.87
Interest on operating costs at 10%	\$17.74
Total cash expenses	\$604.51
General and office overhead—5% of operating expenses	\$30.23
General farm maintenance—3% of operating expense	\$18.14
Share of stand establishment	\$84.22
Total variable costs	\$737.09
Crop returns over variable costs	\$200.90
Annual crop water use— 79 acre-inches or 6.58 af	
Returns to crop and water over variable costs	\$437.90
Maximum average amount a farmer would pay for irrigation water per af	\$66.55

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-7
Food and Feed Grain Production Profitability in Pinal County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 5,812, price per pound = \$0.071)	\$412.65
Total cash growing costs (includes \$96.00 for irrigation water)	\$317.06
Cash harvest costs	\$74.26
Interest on operating costs at 10%	\$15.85
Total cash expenses	\$407.18
General and office overhead—5% of operating expenses	\$20.36
General farm maintenance—3% of operating expense	\$12.22
Total variable costs	\$439.75
Crop returns over variable costs	\$27.10
Annual crop water use— 32 acre-inches or 2.67 af	
Returns to crop and water over variable costs	\$68.90
Maximum average amount a farmer would pay for irrigation water per af	\$25.84

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-8
Upland Cotton Production Profitability in Pinal County—Partial Budget

	Total
Crops sales revenues—Cotton Lint (yield in pounds = 1,361, price per pound = \$0.636)	\$865.60
Crops sales revenues—Cottonseed (yield in tons = 1.2, price per ton = \$142.00)	\$170.40
Total revenues	\$1,036.00
Total cash growing costs (includes \$30.00 for irrigation water)	\$519.23
Cash harvest costs	\$280.94
Interest on operating costs at 10%	\$25.96
Total cash expenses	\$826.13
General and office overhead—5% of operating expenses	\$41.31
General farm maintenance—3% of operating expense	\$24.78
Total variable costs	\$892.22
Crop returns over variable costs	\$143.78
Annual crop water use— 49 acre-inches or 4.08 af	
Returns to crop and water over variable costs	\$287.78
Maximum average amount a farmer would pay for irrigation water per af	\$70.48

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-9
Hay and Forage Production Profitability in Cochise County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 7.84, price per ton = \$102.20)	\$801.25
(grazing = 250 hd, cents per hd = \$0.13)	\$32.50
Total revenues	\$833.75
Total cash growing costs (includes \$243.63 for irrigation water)	\$585.30
Cash harvest costs	\$102.67
Interest on operating costs at 10%	\$29.26
Total cash expenses	\$717.23
General and office overhead—5% of operating expenses	\$35.86
General farm maintenance—3% of operating expense	\$21.52
Share of stand establishment	\$84.22
Total variable costs	\$858.83
Crop returns over variable costs	(\$25.08)
Annual crop water use— 68 acre-inches or 5.67 af	
Returns to crop and water over variable costs	\$218.55
Maximum average amount a farmer would pay for irrigation water per af	\$38.57

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-10
Food and Feed Grain Production Profitability in Cochise County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 6,210, price per pound = \$0.071)	\$440.91
Total cash growing costs (includes \$107.04 for irrigation water)	\$427.90
Cash harvest costs	\$68.57
Interest on operating costs at 10%	\$21.39
Total cash expenses	\$517.87
General and office overhead—5% of operating expenses	\$25.89
General farm maintenance—3% of operating expense	\$15.54
Total variable costs	\$559.29
Crop returns over variable costs	\$118.38
Annual crop water use— 28 acre-inches or 2.33 af	
Returns to crop and water over variable costs	\$11.34
Maximum average amount a farmer would pay for irrigation water per af	\$4.86

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-11
Upland Cotton Production Profitability in Cochise County—Partial Budget

	Total
Crops sales revenues—Cotton Lint (yield in pounds = 1,032, price per pound = \$0.636)	\$656.35
Crops sales revenues—Cottonseed (yield in tons = 0.91, price per ton = \$142.00)	\$129.22
Total revenues	\$785.57
Total cash growing costs (includes \$132.57 for irrigation water)	\$527.74
Cash harvest costs	\$183.44
Interest on operating costs at 10%	\$26.39
Total cash expenses	\$737.57
General and office overhead—5% of operating expenses	\$36.88
General farm maintenance—3% of operating expense	\$22.13
Total variable costs	\$796.57
Crop returns over variable costs	(\$11.00)
Annual crop water use— 37 acre-inches or 3.08 af	
Returns to crop and water over variable costs	\$121.57
Maximum average amount a farmer would pay for irrigation water per af	\$39.43

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-12
Hay and Forage Production Profitability in La Paz County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 7.9, price per ton = \$102.20)	\$804.31
(grazing = 250 hd, cents per hd = \$0.13)	\$32.50
Total revenues	\$836.81
Total cash growing costs (includes \$243.63 for irrigation water)	\$187.67
Cash harvest costs	\$171.67
Interest on operating costs at 10%	\$9.38
Total cash expenses	\$368.73
General and office overhead—5% of operating expenses	\$18.44
General farm maintenance—3% of operating expense	\$11.06
Share of stand establishment	\$84.22
Total variable costs	\$482.44
Crop returns over variable costs	\$354.37
Annual crop water use— 79 acre-inches or 6.58 af	
Returns to crop and water over variable costs	\$374.16
Maximum average amount a farmer would pay for irrigation water per af	\$56.83

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-13
Food and Feed Grain Production Profitability in La Paz County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 5,642, price per pound = \$0.071)	\$400.58
Total cash growing costs (includes \$0 for irrigation water)	\$266.05
Cash harvest costs	\$61.90
Interest on operating costs at 10%	\$13.30
Total cash expenses	\$341.26
General and office overhead—5% of operating expenses	\$17.06
General farm maintenance—3% of operating expense	\$10.24
Total variable costs	\$368.56
Crop returns over variable costs	\$32.03
Annual crop water use— 35 acre-inches or 2.92 af	
Returns to crop and water over variable costs	\$32.03
Maximum average amount a farmer would pay for irrigation water per af	\$10.98

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-14
Hay and Forage Production Profitability in Yuma County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 9.1, price per ton = \$102.20)	\$933.09
(grazing = 250 hd, cents per hd = \$0.13)	\$32.50
Total revenues	\$965.59
Total cash growing costs (includes \$25.83 for irrigation water)	\$153.29
Cash harvest costs	\$224.07
Interest on operating costs at 10%	\$7.66
Total cash expenses	\$385.02
General and office overhead—5% of operating expenses	\$19.25
General farm maintenance—3% of operating expense	\$11.55
Share of stand establishment	\$84.22
Total variable costs	\$500.04
Crop returns over variable costs	\$465.54
Annual crop water use— 85 acre-inches or 7.08 af	
Returns to crop and water over variable costs	\$491.37
Maximum average amount a farmer would pay for irrigation water per af	\$69.37

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-15
Food and Feed Grain Production Profitability in Yuma County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 5,976, price per pound = \$0.071)	\$424.30
Total cash growing costs (includes \$0 for irrigation water)	\$246.97
Cash harvest costs	\$83.09
Interest on operating costs at 10%	\$12.35
Total cash expenses	\$342.41
General and office overhead—5% of operating expenses	\$17.12
General farm maintenance—3% of operating expense	\$10.27
Total variable costs	\$369.80
Crop returns over variable costs	\$54.49
Annual crop water use— 39 acre-inches or 3.25 af	
Returns to crop and water over variable costs	\$54.49
Maximum average amount a farmer would pay for irrigation water per af	\$16.77

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-16
Upland Cotton Production Profitability in Yuma County—Partial Budget

	Total
Crops sales revenues—Cotton Lint (yield in pounds = 1,286, price per pound = \$0.636)	\$817.90
Crops sales revenues—Cottonseed (yield in tons = 1.13, price per ton = \$142.00)	\$160.46
Total revenues	\$978.36
Total cash growing costs (includes \$0 for irrigation water)	\$684.90
Cash harvest costs	\$337.21
Interest on operating costs at 10%	\$34.24
Total cash expenses	\$1,056.35
General and office overhead—5% of operating expenses	\$52.82
General farm maintenance—3% of operating expense	\$31.69
Total variable costs	\$1,140.85
Crop returns over variable costs	(\$162.50)
Annual crop water use— 42 acre-inches or 3.50 af	
Returns to crop and water over variable costs	(\$162.50)
Maximum average amount a farmer would pay for irrigation water per af	(\$46.43)

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-17
Hay and Forage Production Profitability in Mohave County—Partial Budget

	Total
Crops sales revenues—Alfalfa Hay (yield in tons = 7.9, price per ton = \$102.20)	\$804.31
(grazing = 200 hd, cents per hd = \$0.13)	\$26.00
Total revenues	\$830.31
Total cash growing costs (includes \$21.33 for irrigation water)	\$307.84
Cash harvest costs	\$172.90
Interest on operating costs at 10%	\$15.39
Total cash expenses	\$496.13
General and office overhead—5% of operating expenses	\$24.81
General farm maintenance—3% of operating expense	\$14.88
Share of stand establishment	\$84.22
Total variable costs	\$620.04
Crop returns over variable costs	\$210.27
Annual crop water use— 85 acre-inches or 7.08 af	
Returns to crop and water over variable costs	\$231.60
Maximum average amount a farmer would pay for irrigation water per af	\$32.70

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-18
Food and Feed Grain Production Profitability in Mohave County—Partial Budget

	Total
Crops sales revenues—Durum Wheat (yield in pounds = 5,642, price per pound = \$0.071)	\$400.58
Total cash growing costs (includes \$10.46 for irrigation water)	\$185.19
Cash harvest costs	\$51.09
Interest on operating costs at 10%	\$9.26
Total cash expenses	\$245.54
General and office overhead—5% of operating expenses	\$12.28
General farm maintenance—3% of operating expense	\$7.37
Total variable costs	\$265.18
Crop returns over variable costs	\$135.40
Annual crop water use— 39 acre-inches or 3.25 af	
Returns to crop and water over variable costs	\$145.86
Maximum average amount a farmer would pay for irrigation water per af	\$44.88

Note: Dollar values are on a per acre basis. Information is for October 2006.

Table H-19
Upland Cotton Production Profitability in Mohave County—Partial Budget

	Total
Crops sales revenues—Cotton Lint (yield in pounds = 1,354, price per pound = \$0.636)	\$861.14
Crops sales revenues—Cottonseed (yield in tons = 1.19, price per ton = \$142.00)	\$168.98
Total revenues	\$1,030.12
Total cash growing costs (includes \$15.06 for irrigation water)	\$441.54
Cash harvest costs	\$250.24
Interest on operating costs at 10%	\$22.08
Total cash expenses	\$713.85
General and office overhead—5% of operating expenses	\$35.69
General farm maintenance—3% of operating expense	\$21.42
Total variable costs	\$770.96
Crop returns over variable costs	\$259.16
Annual crop water use— 60 acre-inches or 5.00 af	
Returns to crop and water over variable costs	\$274.22
Maximum average amount a farmer would pay for irrigation water per af	\$54.84

Note: Dollar values are on a per acre basis. Information is for October 2006.

H.4 County Level Changes in Employment and Personal Income

H.4.1 Summary Table

Tables H-20 through H-25 summarize the changes in employment and personal income for both Indian and non-Indian agricultural lands due to shortages of Colorado River water. The summaries are shown by level of shortage and by selected years. For years in which there is no probability of a particular shortage level, impacts are negligible and not displayed. Shortages generated in 2008 are not displayed because there was no probability of shortage in that year.

Table H-20
Estimated Changes in Employment as a Result of Shortages to
Non-Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(542.1)	(183.1)	- ¹	-	-
500,000	(558.0)	(193.8)	(115.6)	(43.6)	(42.6)
600,000	(568.3)	(204.3)	(126.1)	(54.1)	(53.1)
800,000	(582.4)	(225.0)	(147.1)	(75.1)	(74.1)
1,000,000	(604.0)	(246.9)	(168.7)	(96.7)	(95.7)
1,200,000	-	(267.0)	(188.8)	(116.8)	(115.9)
1,800,000	-	-	(279.2)	(215)	(214.0)
2,500,000	-	-	(702.0)	-	-

Note: ⁽¹⁾ "-" indicates no shortage occurring.

Table H-21
Estimated Changes in Personal Income as a Result of Shortages to
Non-Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(21,964,019)	(5,496,528)	-	-	-
500,000	(22,462,821)	(5,756,137)	(3,457,141)	(1,319,106)	(1,285,565)
600,000	(22,727,809)	(6,012,420)	(3,713,424)	(1,575,389)	(1,541,848)
800,000	(22,917,311)	(6,518,601)	(4,224,574)	(2,086,539)	(2,052,998)
1,000,000	(23,452,351)	(7,060,878)	(4,761,878)	(2,623,843)	(2,590,302)
1,200,000	-	(7,670,878)	(5,371,882)	(3,233,847)	(3,207,736)
1,800,000	-	-	(7,918,762)	(5,967,401)	(5,933,915)
2,500,000	-	-	(17,964,440)	-	-

Table H-22
Estimated Changes in Employment as a Result of Shortages to
Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(35.3)	(241.7)	-	-	-
500,000	(69.3)	(366.9)	(406.6)	(379.5)	(354.8)
600,000	(209.2)	(395.3)	(431.3)	(405.8)	(381.0)
800,000	(277.5)	(457.5)	(510.2)	(459)	(435.5)
1,000,000	(332.9)	(522.7)	(572.7)	(552.7)	(505.9)
1,200,000	-	(837.7)	(822.7)	(660.2)	(625.3)
1,800,000	-	-	(991.4)	(965.8)	(930.8)
2,500,000	-	-	(991.4)	-	-

Table H-23
Estimated Changes in Personal Income as a Result of Shortages to
Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(669,931)	(7,988,482)	-	-	-
500,000	(1,378,239)	(12,346,618)	(13,871,323)	(12,037,627)	(10,984,230)
600,000	(5,478,477)	(12,748,932)	(13,805,806)	(13,000,127)	(11,942,514)
800,000	(7,928,674)	(15,116,537)	(17,112,204)	(15,581,677)	(14,429,519)
1,000,000	(10,021,660)	(17,948,570)	(20,195,927)	(19,644,211)	(18,032,542)
1,200,000	-	(32,003,686)	(31,521,386)	(24,260,825)	(22,756,330)
1,800,000	-	-	(38,528,376)	(37,524,339)	(36,017,747)
2,500,000	-	-	(38,528,376)	-	-

Table H-24
Estimated Changes in Employment as a Result of Shortages to
Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(577.4)	(424.8)	-	-	-
500,000	(627.3)	(560.7)	(522.2)	(418.9)	(397.4)
600,000	(777.5)	(599.6)	(557.4)	(459.9)	(434.1)
800,000	(859.9)	(682.5)	(657.3)	(534.1)	(509.6)
1,000,000	(936.9)	(769.6)	(741.4)	(649.4)	(601.6)
1,200,000	-	(1,104.7)	(1,011.5)	(777.0)	(741.2)
1,800,000	-	-	(1,270.6)	(1,180.8)	(1,144.8)
2,500,000	-	-	(1,693.4)	-	-

Table H-25
Estimated Changes in Personal Income as a Result of Shortages to
Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(22,633,950)	(13,485,010)	-	-	-
500,000	(23,841,060)	(18,102,755)	(17,328,464)	(13,356,733)	(12,269,795)
600,000	(28,196,286)	(18,761,352)	(17,519,230)	(14,575,516)	(13,484,362)
800,000	(30,845,985)	(21,635,138)	(21,336,778)	(17,668,216)	(16,482,517)
1,000,000	(33,474,011)	(25,009,444)	(24,957,805)	(22,268,054)	(20,622,844)
1,200,000	-	(39,674,564)	(36,893,268)	(27,494,672)	(25,964,066)
1,800,000	-	-	(46,447,138)	(43,491,740)	(41,951,662)
2,500,000	-	-	(56,492,816)	-	-

H.4.2 2017 Tables

The estimated change in employment and income as a result of shortages on Indian and Non-Indian agricultural lands are displayed in Tables H-26 through H-105 for each county by shortage amount and year evaluated.

Table H-26
Estimated Change In Employment and Income as a Result of a
400,000 of shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.1)	(3,144,695)	(1,807,440)	(4,952,135)
Pinal	(177.0)	(183.3)	(360.3)	(10,459,635)	(5,833,577)	(16,293,212)
Mohave	(4.1)	(2.8)	(6.9)	(237,307)	(83,518)	(320,825)
La Paz	(3.4)	(1.8)	(5.1)	(104,770)	(39,827)	(144,598)
Yuma	(7.1)	(3.5)	(10.6)	(157,049)	(96,200)	(253,249)
Total	(300.2)	(241.9)	(542.1)	(14,103,456)	(7,860,562)	(21,964,019)

Table H-27
Estimated Change In Employment and Income as a Result of a
500,000 of shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.2)	(3,144,695)	(1,807,440)	(4,952,135)
Pinal	(179)	(186.5)	(365.6)	(10,598,009)	(5,939,280)	(16,537,289)
Mohave	(7.7)	(3.5)	(11.2)	(289,494)	(102,518)	(69,941)
La Paz	(4.6)	(2.4)	(7.0)	(142,568)	(54,195)	(196,764)
Yuma	(8.5)	(6.4)	(15.0)	(215,957)	(168,664)	(384,621)
Total	(308.4)	(249.3)	(558.0)	(14,390,723)	(8,072,097)	(22,462,821)

Table H-28
Estimated Change In Employment and Income as a Result of a
600,000 of shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.2)	(3,144,695)	(1,807,440)	4,952,135
Pinal	(179.0)	(186.5)	(365.6)	(10,598,009)	(5,939,280)	16,537,289
Mohave	11.3)	(4.1)	(15.4)	(341,756)	(121,544)	(463,300)
La Paz	5.8)	(3.1)	(8.8)	(180,292)	(68,537)	(248,829)
Yuma	(9.9)	(9.4)	19.3)	(274,983)	(241,273)	(516,256)
Total	(314.6)	(253.6)	(568.3)	(14,539,735)	(8,178,074)	(22,717,809)

Table H-29
Estimated Change In Employment and Income as a Result of a
800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.2)	(3,144,695)	(1,807,440)	(4,952,135)
Pinal	(176.5)	(186.5)	(358.8)	(10,421,849)	(5,804,713)	(16,226,562)
Mohave	(18.4)	(5.4)	(23.8)	(446,243)	(159,584)	(605,828)
La Paz	(8.2)	(4.3)	12.5)	(255,960)	(97,301)	(353,260)
Yuma	12.7)	(15.4)	(28.1)	(393,035)	(779,526)	(779,526)
Total	(324.4)	(257.9)	(582.4)	(14,661,782)	(8,255,529)	(22,917,311)

Table H-30
Estimated Change In Employment and Income as a Result of a
1,000,000 af shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.2)	(3,144,695)	(1,807,440)	(4,952,135)
Pinal	(176.5)	(182.3)	(358.8)	(10,421,849)	(5,804,713)	(16,226,562)
Mohave	(25.6)	(6.7)	(32.3)	(550,731)	(197,625)	(748,356)
La Paz	(10.5)	(6.5)	(16.9)	(339,619)	(142,884)	(482,503)
Yuma	(15.5)	(21.3)	(36.8)	(511,087)	(531,708)	(1,042,795)
Total	(336.7)	(267.3)	(604.0)	(14,967,981)	(8,484,370)	(23,452,351)

Table H-31
Estimated Change In Employment and Income as a Result of a
1,200,000 af shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(108.6)	(50.5)	(159.2)	(3,144,695)	(1,807,440)	(4,952,135)
Pinal	(176.5)	(182.3)	(358.8)	(10,421,849)	(5,804,713)	(16,226,562)
Mohave	(31.4)	(8.7)	(40.1)	(697,175)	(255,426)	(952,600)
La Paz	(12.2)	(11.0)	(23.2)	(443,513)	(236,452)	(679,965)
Yuma	(17.6)	(25.3)	(42.9)	(15,322,534)	(8,736,544)	(1,247,815)
Total	(346.3)	(277.8)	(624.2)	(15,322,534)	(8,736,544)	(24,059,077)

Table H-32
Estimated Change In Employment and Income as a Result of a
1,800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-33
Estimated Change In Employment and Income as a Result of a
2,500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-34
Estimated Change In Employment and Income as a Result of a
400,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(3.2)	(0.9)	(4.1)	(57,706)	(31,711)	(89,416)
Pinal	-	-	-	-	-	-
Pima	(24.2)-	(4.6))	(28.9)	(358,232)	(157,416)	(515,647))
Mohave	-	-	-	-	-	-
La Paz	(1.5)	(0.8)	(1.5)	(47,001)	(17,867)	(64,868)
Yuma	-	-	-	-	-	-
Total	(28.9)	(6.3)	(35.3)	(462,939)	(206,994)	(669,931)

Table H-35
Estimated Change In Employment and Income as a Result of a
500,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(21.4)	(5.8)	(27.2)	(383,787)	(210,898)	(594,685)
Pinal	–	–	–	–	–	–
Pima	(32.9)	(6.3)	(32.9)	(487,150)	(214,065)	(515,647)
Mohave	–	–	–	–	–	–
La Paz	(1.9)	(1.0)	2.9	(76,175)	(22,679)	(82,340)
Yuma	–	–	–	–	–	–
Total	(56.2)	(13.2)	(56.2)	(930,598)	(447,642)	(1,378,239)

Table H-36
Estimated Change In Employment and Income as a Result of a
600,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(56.0)	(15.0)	(71.0)	(1,002,712)	(551,008)	(1,553,720))
Pinal	(58.5)	(24.5)	(82.9)	(1,959,296)	(783,798)	(2,743,004)
Pima	(41.8)	(9.5))	(51.3)	(744,163)	(323,577)	(1,067,740)
Mohave	–	–	–	–	–	–
La Paz	(2.2)	(1.7)	(3.9)	(76,175)	(35,572)	(111,746)
Yuma	(0.1)	–	(0.1)	(1,417)	(849)	(2,267)
Total	(158.6)	(50.7)	(209.2)	(3,783,763)	(1,694,714)	(5,478,477)

Table H-37
Estimated Change In Employment and Income as a Result of a
800,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(83.2)	(22.3)	(105.5)	(1,490,470)	(819,041)	(2,309,510)
Pinal	(70.4)	(34.0)	(104.4)	(2,793,733)	(1,095,346)	(3,889,079)
Pima	(41.8)	(13.6)	(61.0)	(1,075,014)	(462,244)	(1,537,258)
Mohave	–	–	–	–	–	–
La Paz	(2.2)	(4.6)	(6.0)	(110,808)	(66,762)	(177,570)
Yuma	(0.1)	(0.2)	(0.6)	(9,540)	(5,717)	(15,257)
Total	(204.2)	(73.0)	(277.5)	(5,479,565)	(2,449,110)	(7,928,674)

Table H-38
Estimated Change In Employment and Income as a Result of a
1,000,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(110.7)	(29.6)	(140.4)	(1,983,478)	(1,089,957)	(3,073,435)
Pinal	(77.8)	(44.2)	(122.0)	(3,705,037)	(1,426,260)	(5,131,297)
Pima	(47.2)	(13.6)	(61)	(1,075,014)	(462,244)	(1,537,258)
Mohave	-	-	-	-	-	-
La Paz	(3.4)	(4.6)	(8.1)	(145,922)	(98,384)	(244,306)
Yuma	(0.8)	(0.6)	(1.4)	(19,769)	(15,568)	(35,364)
Total	(240.1)	(92.6)	(332.9)	(6,929,247)	(3,092,413)	(10,021,660)

Table H-39
Estimated Change In Employment and Income as a Result of a
1,200,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(130.6)	(37.1)	(167.6)	(2,496,359)	(1,361,242)	(3,857,601)
Pinal	(136.7)	(141.3)	(278.0)	(8,073,866)	(4,497,037)	(12,570,903)
Pima	(58.6)	(19.8)	(78.4)	(1,550,723)	(674,158)	(2,224,881)
Mohave	-	-	-	-	-	-
La Paz	(4.0)	(6.2)	(10.2)	(180,984)	(129,963)	(310,947)
Yuma	(1.1)	(1.2)	(2.3)	(31,896)	(30,451)	(62,347)
Total	(331.0)	(205.6)	(536.5)	(12,333,828)	(6,692,851)	(19,026,679)

Table H-40
Estimated Change In Employment and Income as a Result of a
1,800,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-41
Estimated Change In Employment and Income as a Result of a
2,500,000 af Shortage to Indian Agricultural Lands in Arizona—2017

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

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Table H-42
Estimated Change In Employment and Income as a Result of a
400,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.4)	(47.4)	(669,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(32.9)	(113.2)	(2,674,458)	(1,069,769)	(3,744,227)
Mohave	(4.0)	(1.4)	(6.8)	(234,587)	(82,548)	(317,135)
La Paz	(3.4)	(0.5)	(5.1)	(104,770)	(39,828)	(144,598)
Yuma	(7.1)	(1.7)	(10.6)	(157,049)	(96,200)	(253,249)
Total	(131.7)	(46.6)	(183.1)	(3,840,310)	(1,656,217)	(5,496,528)

Table H-43
Estimated Change In Employment and Income as a Result of a
500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.1)	(47.4)	(669,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(33.3)	(113.2)	(2674,458)	(1,069,769)	(3,744,227)
Mohave	(7.8)	(3.5)	(11.2)	(290,370)	(102,836)	(393,206)
La Paz	(4.6)	(2.4)	(7.0)	(142,568)	(54,195)	(196,764)
Yuma	(8.5)	(6.4)	(15.0)	(215,957)	(168,664)	(384,621)
Total	(138.1)	(55.7)	(193.8)	(3,992,799)	(1,763,336)	(5,756,137)

Table H-44
Estimated Change In Employment and Income as a Result of a
600,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.1)	(47.4)	(699,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(33.3)	(113.2)	(2,674,458)	(1,069,769)	(3,744,227)
Mohave	(11.4)	(4.1)	(15.5)	(342,772)	(121,914)	(464,685)
La Paz	(5.8)	(3.1)	(8.9)	(181,093)	(68,841)	(249,933)
Yuma	(9.9)	(9.4)	(19.3)	(274,983)	(241,273)	(516,256)
Total	(144.3)	(60.0)	(204.3)	(4,142,752)	(1,869,669)	(6,012,420)

Table H-45
Estimated Change In Employment and Income as a Result of a
800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.1)	(47.4)	(669,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(33.3)	(113.2)	(2,674,458)	(1,069,769)	(3,744,227)
Mohave	(18.3)	(5.4)	(23.7)	(444,107)	(158,806)	(602,913)
La Paz	(8.2)	(4.3)	(12.6)	(256,942)	(97,674)	(354,616)
Yuma	(12.7)	(15.4)	(28.1)	(393,035)	(386,491)	(779,526)
Total	(156.4)	(68.5)	(225.0)	(4,437,988)	(2,080,612)	(6,518,601)

Table H-46
Estimated Change In Employment and Income as a Result of a
1,000,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.1)	(47.4)	(669,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(33.3)	(113.2)	(2,674,458)	(1,069,769)	(3,744,227)
Mohave	(25.7)	(6.7)	(32.4)	(552,413)	(198,237)	(750,649)
La Paz	(10.5)	(6.6)	(17.1)	(341,397)	(144,487)	(3,744,227)
Yuma	(15.5)	(21.3)	(36.8)	(511,087)	(531,708)	(1,042,795)
Total	(168.9)	(78.0)	(246.9)	(4,748,801)	(2,312,073)	(7,060,874)

Table H-47
Estimated Change In Employment and Income as a Result of a
1,200,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(37.4)	(10.1)	(47.4)	(669,446)	(367,872)	(1,037,319)
Pinal	(79.8)	(33.3)	(113.2)	(2,674,458)	(1,069,769)	(3,744,227)
Mohave	(31.5)	(8.7)	(40.2)	(700,735)	(256,885)	(957,620)
La Paz	(12.2)	(11.1)	(23.2)	(445,582)	(238,315)	(683,897)
Yuma	(17.6)	(25.3)	(42.9)	(615,302)	(632,513)	(1,247,815)
Total	(178.5)	(88.5)	(267.0)	(5,105,523)	(2565,354)	(7670,878)

Table H-48
Estimated Change In Employment and Income as a Result of a
1,800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-49
Estimated Change In Employment and Income as a Result of a
2,500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-50
Estimated Change In Employment and Income as a Result of a
400,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(81.8)	(54.5)	(136.3)	(3,196,822)	(1,912,788)	(5,109,610)
Pinal	(37.0)	(15.5)	(52.5)	(1,240,197)	(496,072)	(1,736,269)
Pima	(42.7)	(10.2)	(52.9)	(796,916)	(345,687)	(1,142,603)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	(161.5)	(80.1)	(241.7)	(5,233,935)	(2,754,547)	(7,988,482)

Table H-51
Estimated Change In Employment and Income as a Result of a
500,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(141.8)	(77.1)	(218.8)	(4,597,707)	(2,722,517)	(7,320,224)
Pinal	(64.9)	(27.1)	(92.1)	(2,678,090)	(1,053,574)	(3,732,272)
Pima	(44.5)	(11.4)	(56.0)	(903,686)	(390,436)	(1,294,122)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	(251.2)	(115.6)	(366.9)	(8,180,090)	(4,166,527)	(12,346,618)

Table H-52
Estimated Change In Employment and Income as a Result of a
600,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(156.2)	(80.9)	(237.1)	(4,855,882)	(2,864,389)	(7,720,271)
Pinal	(69.4)	(32.7)	(102.2)	(2,678,697)	(1,053,574)	(3,732,272)
Pima	(44.5)-	(11.4)	(56.0)	(903,686)	(390,436)	(1,294,122)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	(1,417)	(849)13,084	(2,267)
Total	(270.1)	(125.0)	(395.3)	(8,439,682)	(4,309,248)	(12,748,932)

Table H-53
Estimated Change In Employment and Income as a Result of a
800,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(186.1)	(88.9)	(275.0)	(5,391,576)	(3,158,764)	(8,550,339)
Pinal	(75.9)	(41.6)	(117.4)	(3,470,334)	(1,341,034)	(4,811,368)
Pima	(49.2)	(15.4)	(64.5)	(1,216,738)	(522,835)	(1,739,573)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	(0.4)	(0.2)	(0.6)	(9,540)	(5,717))	(15,257)
Total	(311.6)	(146.1)	(395.3)	(10,088,188)	(5,028,350)	(15,116,537)

Table H-54
Estimated Change In Employment and Income as a Result of a
1,000,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(190.3)	(90.0)	(280.3)	(5,465,869)	(3,199,588)	(8,665,458)
Pinal	(82.4)	(50.5)	(133.0)	(3,470,334)	(1,633,615)	(5,909,685)
Pima	(78.1)	(29.9)	(108.0)	(1,216,738)	(1,021,752)	(5,909,685)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	(0.8)	(0.6)	(1.4)	(19,796)	(15,568)	(35,364)
Total	(351.6)	(171.0)	(522.7)	(12,078,946)	(5,870,523)	(17,948,570)

Table H-55
Estimated Change In Employment and Income as a Result of a
1,200,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(214.3)	(112.7)	(327.0)	(6,878,873)	(4,006,751)	(10,855,625)
Pinal	(162.2)	(183.8)	(346)	(9,833,478)	(5,841,186)	(15,674,664)
Pima	(113.8)	(48.5)	(162.4)	(3,721,370)	(1,659,680)	(5,381,050)
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	(1.1)	(1.2)	(2.3)	(31,896)	(30,451)	(62,347)
Total	(491.4)	(346.2)	(837.7)	(20,465,617)	(11,534,427)	(32,003,686)

Table H-56
 Estimated Change In Employment and Income as a Result of a
 1,800,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-57
 Estimated Change In Employment and Income as a Result of a
 2,500,000 af Shortage to Indian Agricultural Lands in Arizona—2026

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

H.4.4 2027 Tables

Table H-58
Estimated Change In Employment and Income as a Result of a
400,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-59
Estimated Change In Employment and Income as a Result of a
500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)	(169,234)	(477,203)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(7.8)	(3.5)	(11.2)	(290,370)	(102,837)	(393,206)
La Paz	(4.6)	(2.4)	(7.0)	(142,568)	(54,195)	(196,764)
Yuma	(8.5)	(6.4)	(15.0)	(215,957)	(168,664)	(384,621)
Total	(80.8)	(34.8)	(115.8)	(2,389,260)	(1,067,881)	(3,457,141)

Table H-60
Estimated Change In Employment and Income as a Result of a
600,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)	(169,234)	(477,203)-
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(11.4)	(4.1)	(15.5)	(342,772)	(121,914)	(464,685)
La Paz	(5.8)	(3.1)	(8.9)	(181,093)	(68,841)	(249,933)
Yuma	(9.9)	(9.4)	(19.3)	(274,983)	(241,271)	(516,256)
Total	(87.0)	(39.1)	(126.1)	(2,539,213)	(1,174,213)	(3,713,424)

Table H-61
Estimated Change In Employment and Income as a Result of a
800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)	(169,234)	(477,203)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(18.5)	(5.4)	(24.0)	(447,750)	(160,234)	(607,882)
La Paz	(8.2)	(4.3)	(12.6)	(256,942)	(97,674)	(354,616)
Yuma	(12.7)	(15.4)	(28.1)	(393,035)	(386,491)	(779,526)
Total	(99.3)	(47.6)	(147.1)	(2,838,092)	(1,386,483)	(4,224,574)

Table H-62
Estimated Change In Employment and Income as a Result of a
1,000,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(6.6)	(21.8)	(307,969)	(169,234)	(477,203)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(25.7)	(6.7)	(32.4)	(552,413)	(198,237)	(750,649)
La Paz	(10.5)	(6.6)	(17.7)	(341,397)	(144,487)	(485,884)
Yuma	(15.5)	(21.3)	(36.8)	(511,087)	(531,708)	(1,042,795)
Total	(111.6)	(57.1)	(168.7)	(3,145,262)	(1,616,617)	(4,761,878)

Table H-63
Estimated Change In Employment and Income as a Result of a
1,200,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)-	(169,234)	(683,897)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(31.5)	(8.7)	(40.2)	(700,735)	(256,885)	(957,620)
La Paz	(12.2)	(11.1)	(23.3)	(445,582)	(486,619)	(1,207,911)
Yuma	(17.6)	(25.3)	(42.9)	(615,302)	(632,513)	(1,247,815)
Total	(121.2)	(67.6)	(188.8)	(3,501,984)	(1,869,898)	(5,371,882)

Table H-64
Estimated Change In Employment and Income as a Result of a
1,800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)	(169,234)	(477,203)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(43.7)	(15.6)	(59.3)	(1,182,325)	(454,329)	(1,636,654)
La Paz	(16.8)	(23.2)	(40.0)	(721,292)	(488,619)	(1,207,911)
Yuma	(54.1)	(43.3)	97.5)	(1,457,393)	(1,134,254)	(2,591,647)
Total	(174.5)	(104.6)	(279.2)	(5,101,375)	(2,817,387)	(7,918,762)

Table H-65
Estimated Change In Employment and Income as a Result of a
2,500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(17.2)	(4.6)	(21.8)	(307,969)	(169,234)	(477,203)
Pinal	(42.7)	(17.9)	(60.6)	(1,432,396)	(572,951)	(2,005,347)
Mohave	(17.2)	(15.6)	(59.3)	(1,182,325)	(454,329)	(1,636,654)
La Paz	(16.8)	(23.2)	(40.0)	(721,292)	(488,619)	(1,207,911)
Yuma	(341.2)	(179.1)	(520.3)	(7,738,710)	(4,898,615)	(12,637,325)
Total	(461.6)	(240.4)	(702.0)	(11,382,692)	(6,581,748)	(17,964,440)

Table H-66
Estimated Change In Employment and Income as a Result of a
400,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-67
Estimated Change In Employment and Income as a Result of a
500,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(166.3)	(88.6)	(254.9)	(5,287,882)	(3,132,356)	(8,420,237)
Pinal	(64.9)	(27.1)	(92.1)	(2,893,043)	(1,131,408)	(4,024,451)
Pima	(44.8)	(11.9)	(56.7)	(939,139)	(405,156)	(1,344,295)
Mohave	-	-	-	-	-	-
La Paz	(1.9)	(1.1)	(2.9)	(59,661)	(22,679)	(82,340)
Yuma	-	-	-	-	-	-
Total	(277.9)	(128.7)	(406.6)	(9,179,725)	(4,691,599)	(13,871,323)

Table H-68
Estimated Change In Employment and Income as a Result of a
600,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(178.2)	(90.2)	(268.4)	(5,417,985)	(3,195,798)	(8,613,782)
Pinal	(69.4)	(32.7)	(102.2)	(2,678,697)	(1,053,574)	(3,732,272)
Pima	(44.8)	(11.9)	(56.7)-	(940,157)	(405,582)	(1,345,739)-
Mohave	-	-	-	-	-	-
La Paz	(2.2)	(1.7)	(3.9)	(76,175)	(35,572)	(111,746)
Yuma	(0.1)	-	(0.1)	(1,417)	(849)	(2,267)
Total	(297.4)	(136.5)	(431.3)	(9,114,131)	(4,691,375)	(13,805,806)

Table H-69
Estimated Change In Employment and Income as a Result of a
800,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(199.0)	(98.4)	(297.4)	(5,987,056)	(3,495,381)	(9,482,436)
Pinal	(75.9)	(41.6)	(117.4)	(3,470,334)	(1,341,034)	(4,811,368)
Pima	(65.3)	(23.4)	(88.8)	(1,826,051)	(799,522)	(2,625,436)
Mohave	-	-	-	-	-	-
La Paz	(2.8)	(3.2)	(6.0)	(110,808)	(66,762)	(177,570)
Yuma	(0.4)	(0.2)	(0.6)	(9,540)	(5,717)	(15,257)
Total	(343.4)	(166.8)	(510.2)	(11,403,789)	(8,026,685)	(17,112,204)

Table H-70
Estimated Change In Employment and Income as a Result of a
1,000,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(211.3)	(110.0)	(321.3)	(6,717,901)	(3,910,207)	(10,628,108)
Pinal	(82.4)	(50.5)	(133.0)	(4,276,070)	(1,633,615)	(5,909,685)
Pima	(78.5)	(30.3)	(108.9)	(2,343,850)	(1,034,614)	(3,378,464)
Mohave	-	-	-	-	-	-
La Paz	(3.4)	(4.6)	(8.1)	(145,922)	(98,384)	(244,306)
Yuma	(0.8)	(0.6)	(1.4)	(19,796)	(15,568)	(35,364)
Total	(376.4)	(196)	(572.7)	(13,503,539)	(9,419,500)	(20,195,927)

Table H-71
Estimated Change In Employment and Income as a Result of a
1,200,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(228.9)	(126.4)	(355.3)	(7,618,460)	(4,476,504)	(12,094,964)
Pinal	(162.2)	(183.8)	(346.0)	(9,833,478)	(1,633,615)	(4,811,368)
Pima	(78.5)	(30.3)	(108.9)	(2,343,850)	(1,034,614)	(3,378,464)
Mohave	-	-	-	-	-	-
La Paz	(4.0)	(6.2)	(10.2)	(180,984)	(129,963)	(310,947)
Yuma	(1.1)	(1.2)	(2.3)	(31,896)	(30,451)	(62,347)
Total	(474.7)	(347.9)	(822.7)	(20,008,668)	(17,531,261)	(31,521,386)

Table H-72
Estimated Change In Employment and Income as a Result of a
1,800,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(274.8)	(169.1)	(443.9)	(9,964,882)	(5,952,004)	(15,916,887)
Pinal	(170.7)	(198.1)	(368.7)	(10,420,784)	(6,289,824)	(16,710,607)
Pima	(112.9)	(48.3)	(161.1)	(3,693,056)	(1,647,183)	(5,340,239)
Mohave	-	-	-	-	-	-
La Paz	(5.0)	(8.6)	(13.6)	(2259,074)	(180,276)	(439,350)
Yuma	(1.7)	(2.4)	(4.1)	(61,070)	(60,224)	(121,293)
Total	(565.1)	(426.5)	(991.4)	(24,398,866)	(21,305,395)	(38,528,376)

Table H-73
Estimated Change In Employment and Income as a Result of a
2,500,000 af Shortage to Indian Agricultural Lands in Arizona—2027

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(274.8)	(169.1)	(443.9)	(9,964,882)	(5,952,004)	(15,916,887)
Pinal	(170.7)	(198.1)	(368.7)	(10,420,784)	(6,289,824)	(16,710,607)
Pima	(112.9)	(48.3)	(161.1)	(3,693,056)	(1,647,183)	(5,340,239)
Mohave	-	-	-	-	-	-
La Paz	(5.0)	(8.6)	(13.6)	(2259,074)	(180,276)	(439,350)
Yuma	(1.7)	(2.4)	(4.1)	(61,070)	(60,224)	(121,293)
Total	(565.1)	(426.5)	(991.4)	(24,398,866)	(21,305,395)	(38,528,376)

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Table H-74
Estimated Change In Employment and Income as a Result of a
400,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-75
Estimated Change In Employment and Income as a Result of a
500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(7.8)	(3.5)	(11.2)	(290,370)	(102,837)	(393,206)
La Paz	(4.6)	(2.4)	(7.0)	(142,568)	(54,195)	(196,764)
Yuma	(8.5)	(6.4)	(15.0)	(215,957)	(168,664)	(384,621)
Total	(28.2)	(15.3)	(43.6)	(894,978)	(424,128)	(1,319,106)

Table H-76
Estimated Change In Employment and Income as a Result of a
600,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(11.4)	(4.1)	(15.5)	(342,772)	(121,914)	(464,685)
La Paz	(5.8)	(3.1)	(8.9)	(181,093)	(68,841)	(249,933)
Yuma	(9.9)	9.4	(19.3)	(274,983)	(241,273)	(516,256)
Total	(34.4)	(19.6)	(54.1)	(1,044,931)	(530,460)	(1,575,389)

Table H-77
Estimated Change In Employment and Income as a Result of a
800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(18.5)	(5.4)	(24.0)	(447,750)	(160,133)	(607,882)
La Paz	(8.2)	(4.3)	(12.6)	(246,083)	(97,674)	(354,616)
Yuma	(12.7)	(17.4)	(28.1)	(393,035)	(386,491)	(779,526)
Total	(46.7)	(28.1)	(75.1)	(1,343,810)	(742,730)	(2,086,539)

Table H-78
Estimated Change In Employment and Income as a Result of a
1,000,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)-	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(25.7)	(6.7)	(32.4)	(552,413)	(198,237)	(750,649)
La Paz	(10.5)	(6.6)	(17.1)	(341,397)	(144,487)	(485,884)
Yuma	(15.5)	(21.3)	(36.8)	(511,087)	(531,708)	(1,042,795)
Total	(59.0)	(37.6)	(96.7)	(1,650,980)	(972,864)	(2,623,843)

Table H-79
Estimated Change In Employment and Income as a Result of a
1,200,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(31.5)	(8.7)	(40.2)	(700,735)	(256,885)	(957,620)
La Paz	(12.2)	(11.1)	(23.2)	(445,582)	(283,315)	(683,897)
Yuma	(17.6)	(25.3)	(42.9)	(615,302)	(632,513)	(1,247,815)
Total	(68.6)	(48.1)	(116.8)	(2,007,702)	(1,226,145)	(3,233,847)

Table H-80
Estimated Change In Employment and Income as a Result of a
1,800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(7.3)	(3.0)	(10.4)	(246,083)	(98,432)	(344,515)
Mohave	(43.7)	(15.6)	(59.3)	(1,182,325)	(454,329)	(1,636,654)
La Paz	(16.8)	(23.2)	(40.0)	(721,292)	(486,619)	(1,207,911)
Yuma	(59.4)	(45.8)	(105.3)	(1,574,116)	(1,204,205)	(2,778,321)
Total	(127.2)	(87.6)	(215.0)	(3,723,816)	(2,243,585)	(5,967,401)

Table H-81
Estimated Change In Employment and Income as a Result of a
2,500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-82
Estimated Change In Employment and Income as a Result of a
400,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-83
Estimated Change In Employment and Income as a Result of a
500,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(146.1)	(65.1)	(211.2)	(4,021,215)	(2,326,029)	(6,347,244)
Pinal	73.6)	(38.4)	(112.0)	(3,186,707)	(1,238,044)	(4,424,750)
Pima	(42.8)	(10.5)	(53.4)	(825,688)	(357,606)	(1,183,293)
Mohave	-	-	-	-	-	-
La Paz	(1.9)	(1.1)	2.9)	(59,661)	(22,679)	(82,340)
Yuma	-	-	-	-	-	-
Total	(264.4)	(115.1)	(379.5)	(8,093,271)	(3,944,358)	(12,037,627)

Table H-84
Estimated Change In Employment and Income as a Result of a
600,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(159.3)	(67.8)	(227.0)	(4,207,370)	(2,424,192)	(26,631,562)
Pinal	(77.2)	(43.4)	(120.6)	(3,632,464)	(1,399,907)	(5,032,372)
Pima	(43.3)	(10.9)	(54.2)	(853,090)	(369,090)	(1,222,180)
Mohave	-	-	-	-	-	-
La Paz	(2.2)	(1.7)	(3.9)	(76,175)	(35,572)	(111,746)
Yuma	(0.1)	-	(0.1)	(1,417)	(849)	(2,267)
Total	(282.1)	(123.8)	(405.8)	(8770,516)	(4,229,610)	(13,000,127)

Table H-85
Estimated Change In Employment and Income as a Result of a
800,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(174.9)	(75.9)	(250.8)	(4,795,878)	(2,726,885)	(7,522,762)
Pinal	(84.5)	(53.8)	(138.2)	(4,459,924)	(1,736,385)	(6,196,309)
Pima	(48.7)	(14.7)	(63.4)	(1,168,495)	(501,284)	(1,669,779)
Mohave	-	-	-	-	-	-
La Paz	(2.8)	(3.2)	(6.0)	(110,808)	(66,762)	(177,570)
Yuma	(0.4)	(0.2)	(0.6)	(9,540)	(5,717)	(15,257)
Total	(311.3)	(147.8)	(459.0)	(10,544,645)	(5,037,033)	(15,581,677)

Table H-86
Estimated Change In Employment and Income as a Result of a
1,000,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(189.7)	(89.7)	(279.4)	(5,608,426)	(3,212,536)	(8,820,962)
Pinal	(61.6)	(80.3)	(180.7)	(5,556,848)	(2,574,315)	(8,131,163)
Pima	(100.4)	(21.5)	(83.1)	(1,679,453)	(732,963)	(2,412,416)
Mohave	-	-	-	-	-	-
La Paz	(3.4)	(4.6)	(8.1)	(145,922)	(98,384)	(244,306)
Yuma	(0.8)	(0.6)	(1.4)	(19,796)	(15,568)	(35,364)
Total	(355.9)	((196.7)	(552.7)	(13,010,445)	(6,633,766)	(19,644,211)

Table H-87
Estimated Change In Employment and Income as a Result of a
1,200,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(207.3)	(106.2)	(313.6)	(6,512,873)	(3,781,279)	(10,294,152)
Pinal	(119.2)	(111.9)	(231.1)	(6,862,348)	(3,571,572)	(10,433,920)
Pima	(74.7)	(28.3)	(103.0)	(2,193,230)	(966,229)	(3,159,459)
Mohave	-	-	-	-	-	-
La Paz	(4.0)	(6.2)	(8.1)	(180,984)	(129,963)	(310,947)
Yuma	(1.1)	(1.2)	(2.3)	(31,896)	(30,451)	(62,347)
Total	((406.3)	(253.8)	(660.2)	(15,781,331)	(8,479,494)	(24,260,825)

Table H-88
Estimated Change In Employment and Income as a Result of a
1,800,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	252.5)	148.3)	(400.9)	(8,825,586)	(5,235,581)	(14,061,167)
Pinal	(179.8)	(213.4)	(393.3)	(11,056,936)	(6,775,773)	(17,832,708)
Pima	(108.1)	(45.8)	(153.9)	(3,507,077)	(1,562,744)	(5,069,821)
Mohave	-	-	-	-	-	-
La Paz	(5.0)	(8.6)	(1367)	(259,074)	(180,276)	(439,350)
Yuma	(1.7)	(2.4)	(4.1)	(61,070)	(30,451)	(62,347)
Total	(547.1)	(418.5)	(965.8)	(23,709,743)	(13,814,598)	(37,524,339)

Table H-89
Estimated Change In Employment and Income as a Result of a
2,500,000 af Shortage to Indian Agricultural Lands in Arizona—2040

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

H.4.6 2060 Tables

Table H-90
Estimated Change In Employment and Income as a Result of a
400,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

Table H-91
Estimated Change In Employment and Income as a Result of a
500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(6.6)	(2.8)	(9.4)	(222,125)	(88,849)	(310,974)
Mohave	(7.8)	(3.5)	(11.2)	(290,370)	(102,837)	(393,206)
La Paz	(4.6)	(2.4)	(7.0)	(142,568)	(54,195)	(196,764)
Yuma	(8.5)	(6.4)	(15.0)	(215,957)	(168,664)	(384,621)
Total	(27.5)	(15.1)	(42.6)	(871,020)	(414,545)	(1,285,565)

Table H-92
Estimated Change In Employment and Income as a Result of a
600,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(6.6)	(2.8)	(9.4)	(222,125)	(88,849)	(310,974)
Mohave	(11.4)	(4.1)	(15.5)	(342,772)	(121,914)	(464,685)
La Paz	(5.8)	(3.1)	(8.9)	(181,093)	((68,841)	(249,933)
Yuma	(9.9)	(9.4)	(19.3)	(274,983)	(241,273)	(516,256)
Total	(33.7)	(19.4)	(53.1)	(1,020,973)	(520,877)	(1,541,848)

Table H-93
Estimated Change In Employment and Income as a Result of a
800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(6.6)	(2.8)	(9.4)	(222,125)	(88,849)	(310,974)
Mohave	(18.5)	(5.4)	(24.0)	447,750	(160,133)	(607,882)
La Paz	(8.2)	(4.3)	(12.6)	(256,942)	(97,674)	(354,616)
Yuma	(2.7)	(15.4)	(28.1)	(393,035)	(386,491)	(779,526)
Total	(46.0)	(27.9)	(74.1)	(1,319,852)	(733,147)	(2,052,998)

Table H-94
Estimated Change In Employment and Income as a Result of a
1,000,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(6.6)	(2.8)	(9.4)	(222,125)	(88,849)	(310,974)
Mohave	(25.7)	(6.7)	(32.4)	(552,413)	(198,237)	(750,648)
La Paz	(10.5)	(6.6)	(17.1)	(341,397)	(144,487)	(485,884)
Yuma	(15.5)	(21.3)	(36.8)	(511,087)	(531,708)	(1,042,795)
Total	(58.3)	(37.4)	(95.7)	(1,627,022)	(963,281)	(2,590,302)

Table H-95
Estimated Change In Employment and Income as a Result of a
1,200,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	(6.6)	(2.8)	(9.4)	(222,125)	(88,849)	(310,974)
Mohave	(31.5)	(8.7)	(40.2)	700,735	256,885	(957,620)
La Paz	(12.2)	(11.1)	(23.3)	(445,582)	(238,315)	(683,897)
Yuma	(17.6)	(25.3)	(43.0)	(620,096)	(635,149)	(1,042,795)
Total	(67.9)	(47.9)	(115.9)	(3,699,892)	(1,219,198)	(3,207,736)

Table H-96
Estimated Change In Employment and Income as a Result of a
1,800,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment				Income		
	Direct	Indirect + Induced	Total		Direct	Indirect + Induced	Total
Maricopa	-	-	-		-	-	-
Pinal	(6.6)	(2.8)	(9.4)		(222,125)	(88,849)	(310,974)
Mohave	(43.7)	(15.6)	(59.3)		(1,182,235)	(454,329)	(1,636,654)
La Paz	(16.8)	(23.2)	(40.0)		(721,292)	(486,619)	(683,897)
Yuma	(59.5)	(45.8)	(105.3)		(1,574,150)	(1,204,255)	(2,778,376)
Total	(126.6)	(87.4)	(214.0)		(3,699,892)	(2,234,022)	(5,933,915)

Table H-97
Estimated Change In Employment and Income as a Result of a
2,500,000 af shortage to Non-Indian Agricultural Lands in Arizona—2060

County	Employment				Income		
	Direct	Indirect + Induced	Total		Direct	Indirect + Induced	Total
Maricopa	-	-	-		-	-	-
Pinal	-	-	-		-	-	-
Mohave	-	-	-		-	-	-
La Paz	-	-	-		-	-	-
Yuma	-	-	-		-	-	-
Total	-	-	-		-	-	-

Table H-98
Estimated Change In Employment and Income as a Result of a
400,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment				Income		
	Direct	Indirect + Induced	Total		Direct	Indirect + Induced	Total
Maricopa	-	-	-		-	-	-
Pinal	-	-	-		-	-	-
Pima	-	-	-		-	-	-
Mohave	-	-	-		-	-	-
La Paz	-	-	-		-	-	-
Yuma	-	-	-		-	-	-
Total	-	-	-		-	-	-

Table H-99
Estimated Change In Employment and Income as a Result of a
500,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(134.9)	(57.9)	(192.8)	(3,605,593)	(2,071,498)	(5,677,452)
Pinal	(72.0)	(36.2)	(108.2)	(2,992,272)	(1,167,440)	(4,159,712)
Pima	(41.4)	(9.5)	(50.9)	(742,138)	(322,589)	(1,064,726)
Mohave	-	-	-	-	-	-
La Paz	(2.2)	(1.1)	(2.9)	(59,661)	(22,679)	(82,340)
Yuma	-	-	-			
Total	(250.2)	(104.7)	(354.8)	(7,440,024)	(3,584,206)	(10,984,230)

Table H-100
Estimated Change In Employment and Income as a Result of a
600,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(148.1)	(60.9)	(208.7)	(3,799,711)	(2,174,774)	(5,974,485)
Pinal	(75.5)	(41.0)	(116.5)	(3,421,898)	(1,323,446)	(4,745,344)
Pima	(41.9)	(9.9)	(51.8)	(773,105)	(335,567)	(1,108,672)
Mohave	-	-	-	-	-	-
La Paz	(2.2)	(1.7)	(3.9)	(876,175)	(35,572)	(111,746)
Yuma	(0.1)	-	(0.1)	(1,417)	(849)	(2,267)
Total	(267.8)	(113.2)	(381.0)	((8,072,306)	(3,870,208)	(11,942,514)

Table H-101
Estimated Change In Employment and Income as a Result of a
800,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(167.3)	(68.7)	(236.0)	(4,375,668)	(2,475,624)	(6,851,292)
Pinal	(82.0)	(49.9)	(131.9)	(4,218,613)	(1,612,751)	(5,851,292)
Pima	(47.3)	(13.7)	(61.0)	(1,086,936)	(467,101)	(1,554,036)
Mohave	-	-	-	-	-	-
La Paz	(2.8)	(3.2)	(6.0)	(110,808)	(66,762)	(177,570)
Yuma	(0.4)	(0.2)	(0.6)	(9,540)	(5,717)	(15,257)
Total	(299.8)	(135.7)	(435.5)	(9,801,565)	(4,627,955)	(14,429,519)

Table H-102
Estimated Change In Employment and Income as a Result of a
1,000,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(180.4)	(81.1)	(261.5)	(5,133,941)	(2,914,166)	(8,048,107)
Pinal	(96.0)	(73.1)	(169.0)	(5,256,237)	(2,344,681)	(7,600,918)
Pima	(47.1)	(18.8)	(65.9)	(1,465,083)	(638,763)	(7,600,918)
Mohave	-	-	-	-	-	-
La Paz	(3.4)	(4.6)	(8.1)	(145,922)	(98,384)	(244,306)
Yuma	(0.8)	(0.6)	(1.4)	(19,796)	(15,568)	(35,364)
Total	(327.7)	(178.2)	(505.9)	(12,020,979)	(6,011,562)	(18,032,542)

Table H-103
Estimated Change In Employment and Income as a Result of a
1,200,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(198.0)	(97.5)	(295.6)	(6,037,651)	(3,482,445)	(9,520,096)
Pinal	(114.9)	(104.6)	(219.5)	(66,560,954)	(3,341,340)	(9,902,295)
Pima	(71.2)	(26.5)	(97.7)	(2,056,496)	(904,148)	(2,960,645)
Mohave	-	-	-	-	-	-
La Paz	(4.0)	(6.2)	(10.2)	(180,984)	(129,963)	(310,947)
Yuma	(1.1)	(1.2)	(2.3)	(31,896)	(30,451)	(62,347)
Total	(398.2)	(236.0)	(625.3)	(14,867,981)	(7,888,347)	(22,756,330)

Table H-104
Estimated Change In Employment and Income as a Result of a
1,800,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	(243.2)	(139.7)	(382.9)	(8,350,095)	(4,936,579)	(13,286,674)
Pinal	(175.5)	(206.2)	(381.6)	(10,755,039)	(6,545,157)	(17,300,196)
Pima	(104.6)	(43.9)	(148.6)	(3,369,095)	(1,500,423)	(4,870,234)
Mohave	-	-	-	-	-	-
La Paz	(5.0)	(8.6)	(13.6)	(259,074)	(182,276)	(439,350)
Yuma	(1.7)	(2.4)	(4.1)	(61,070)	(60,224)	(121,293)
Total	(530.0)	(400.8)	(930.8)	(22,795,089)	(13,222,659)	(36,017,747)

Table H-105
Estimated Change In Employment and Income as a Result of a
2,500,000 af Shortage to Indian Agricultural Lands in Arizona—2060

County	Employment			Income		
	Direct	Indirect + Induced	Total	Direct	Indirect + Induced	Total
Maricopa	-	-	-	-	-	-
Pinal	-	-	-	-	-	-
Pima	-	-	-	-	-	-
Mohave	-	-	-	-	-	-
La Paz	-	-	-	-	-	-
Yuma	-	-	-	-	-	-
Total	-	-	-	-	-	-

H.5 County Level Changes in Tax Revenue

H.5.1 Summary Tables

Tables H-106 through H-107 summarize the changes in Tax Revenue as a result of shortage to Indian and non-Indian agricultural lands. The summaries are shown by level of shortage and by selected years. For years in which there is no probability of a particular shortage level, impacts are negligible and not displayed. Shortages generated in 2008 are not displayed because there was no probability of shortage in that year.

Table H-106
Estimated Changes in Tax Revenues as a Result of Shortages to
Non-Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(7,540,614)	(1,916,810)	-	-	-
500,000	(7,708,603)	(2,002,340)	(1,193,599)	(441,586)	(429,807)
600,000	(7,792,562)	(2,086,731)	(1,277,990)	(525,977)	(514,198)
800,000	(7,853,475)	(2,253,320)	(1,446,304)	(694,291)	(682,512)
1,000,000	(8,095,358)	(2,431,832)	(1,623,091)	(871,078)	(859,299)
1,200,000	(8,161,205)	(2,630,341)	(1,821,600)	(1,069,587)	(1,060,226)
1,800,000	-	(3,457,940)	(2,649,199)	(1,958,230)	(1,946,469)
2,500,000	-	-	(5,934,205)	-	-

Table H-107
Estimated Changes in Tax Impacts as a Result of Shortages to
Indian Agricultural Lands for Selected Shortage Amounts and Years

Shortage Amount (af)	Year				
	2017	2026	2027	2040	2060
400,000	(236,807)	(2,666,626)	-	-	-
500,000	(486,410)	(3,928,252)	(4,337,093)	(4,114,091)	(3,766,207)
600,000	(1,924,884)	(4,308,056)	(4,661,288)	(4,452,866)	(4,102,823)
800,000	(2,774,543)	(5,128,425)	(5,782,239)	(5,334,975)	(6,358,789)
1,000,000	(3,503,468)	(6,080,379)	(6,808,337)	(6,688,004)	(6,945,123)
1,200,000	(6,597,108)	(10,840,482)	(10,666,914)	(8,221,182)	(7,728,773)
1,800,000	-	(11,159,957)	(12,932,488)	(12,645,448)	(12,152,341)
2,500,000	-	-	(12,932,488)	-	-

H.5.2 2017 Tables

The estimated change in tax impact as a result of shortages on Indian and Non-Indian agricultural lands are displayed in Tables H-108 through H-147 for each county by shortage amount and year evaluated.

Table H-108
Estimated Change In Tax Impact as a Result of a 400,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(31,620)
Pinal	(5,648,411)	-
Mohave	(105,818)	-
La Paz	(47,736)	(21,415)
Yuma	(82,757)	-
Pima	-	(183,052)
Total	(7,540,614)	(236,087)

Table H-109
Estimated Change In Tax Impact as a Result of a 500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(210,299)
Pinal	(5,732,527)	-
Mohave	(130,532)	-
La Paz	(64,957)	(27,183)
Yuma	(124,695)	-
Pima	-	(248,928)
Total	(7,708,603)	(486,410)

Table H-110
Estimated Change In Tax Impact as a Result of a 600,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(549,443)
Pinal	(5,732,527)	(963,301)
Mohave	(155,280)	-
La Paz	(82,145)	(36,820)
Yuma	(166,718)	(741)
Pima	-	(374,579)
Total	(7,792,562)	(1,924,884)

Table H-111
Estimated Change In Tax Impact as a Result of a 800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(816,714)
Pinal	(5,625,441)	(1,361,977)
Mohave	(204,760)	-
La Paz	(116,620)	(58,359)
Yuma	(250,762)	(4,989)
Pima	-	(532,504)
Total	(7,853,475)	(2,774,543)

Table H-112
Estimated Change In Tax Impact as a Result of a 1,000,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(1,086,861)
Pinal	(5,625,441)	(1,792,443)
Mohave	(254,240)	-
La Paz	(159,141)	(80,197)
Yuma	(400,644)	(11,463)
Pima	-	(532,504)
Total	(8,095,358)	(3,503,468)

Table H-113
Estimated Change In Tax Impact as a Result of a 1,200,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(1,655,892)	(1,357,833)
Pinal	(5,625,441)	(4,358,092)
Mohave	(321,310)	-
La Paz	(223,755)	(102,004)
Yuma	(334,807)	(20,076)
Pima	-	(759,103)
Total	(9,057,531)	(6,597,108)

Table H-114
Estimated Change In Tax Impact as a Result of a 1,800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Pima	-	-
Total	-	-

Table H-115
Estimated Change In Tax Impact as a Result of a 2,500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2017

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Pima	-	-
Total	-	-

H.5.3 2026 Tables

Table H-116
Estimated Change In Tax Impact as a Result of a 400,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(1,657,116)
Pinal	(1,314,914)	(609,751)
Mohave	(104,575)	-
La Paz	(47,736)	-
Yuma	(82,757)	-
Pima	-	(399,759)
Total	(1,916,809)	(2,666,626)

Table H-117
Estimated Change In Tax Impact as a Result of a 500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(2,407,484)
Pinal	(1,314,914)	(1,070,044)
Mohave	(130,946)	-
La Paz	(64,957)	-
Yuma	(124,695)	-
Pima	-	(1,070,044)
Total	(2,002,340)	(3,928,252)

Table H-118
Estimated Change In Tax Impact as a Result of a 600,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(2,548,953)
Pinal	(1,314,914)	(1,307,638)
Mohave	(155,761)	-
La Paz	(82,510)	-
Yuma	(166,718)	(741)
Pima	-	(450,724)
Total	(2,086,731)	(4,308,056)

Table H-119
Estimated Change In Tax Impact as a Result of a 800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(2,842,490)
Pinal	(1,314,914)	(1,681,578)
Mohave	(203,748)	-
La Paz	(117,068)	-
Yuma	(250,762)	(4,989)
Pima	-	(599,368)
Total	(2,253,320)	(5,128,425)

Table H-120
Estimated Change In Tax Impact as a Result of a 1,000,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(2,883,200)
Pinal	(1,314,914)	(2,062,179)
Mohave	(255,036)	-
La Paz	(160,247)	-
Yuma	(250,762)	(11,463)
Pima	-	(1,123,537)
Total	(2,431,832)	(6,080,379)

Table H-121
Estimated Change In Tax Impact as a Result of a 1,200,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(3,600,287)
Pinal	(1,314,914)	(5,427,747)
Mohave	(322,913)	-
La Paz	(225,042)	-
Yuma	(400,644)	(11,463)
Pima	-	(1,792,372)
Total	(2,630,341)	(10,840,482)

Table H-122
Estimated Change In Tax Impact as a Result of a 1,800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(366,828)	(4,840,247)
Pinal	(1,314,914)	(5,784,767)
Mohave	(539,741)	-
La Paz	(396,513)	(-
Yuma	(839,944)	(38,981)
Pima	-	(495,965)
Graham	-	-
Total	(3,457,950)	(11,159,960)

Table H-123
Estimated Change In Tax Impact as a Result of a 2,500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2026

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Pima	-	-
Total	-	-

H.5.4 2027 Tables

Table H-124
Estimated Change In Tax Impact as a Result of a 400,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Pima	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Total	-	-

Table H-125
Estimated Change In Tax Impact as a Result of a 500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(2,772,452)
Pinal	(704,247)	(1,070,044)
Pima	-	(467,414)
Mohave	(130,946)	-
La Paz	(64,957)	(27,183)
Yuma	(124,695)	-
Total	(1,193,599)	(4,337,093)

Table H-126
Estimated Change In Tax Impact as a Result of a 600,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(2,848,189)
Pinal	(704,247)	(1,307,638)
Pima	-	(467,900)
Mohave	(155,761)	-
La Paz	(82,510)	(36,820)
Yuma	(166,718)	(741)
Total	(1,277,990)	(4,661,288)

Table H-127
Estimated Change In Tax Impact as a Result of a 800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(3,147,490)
Pinal	(704,247)	(1,681,578)
Pima	-	(889,913)
Mohave	(205,473)	-
La Paz	(117,068)	(58,359)
Yuma	(250,762)	(4,989)
Total	(1,446,304)	(5,782,329)

Table H-128
Estimated Change In Tax Impact as a Result of a 1,000,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(3,518,103)
Pinal	(704,247)	(2,062,179)
Pima	-	(1,136,395)
Mohave	(255,036)	-
La Paz	(160,247)	(80,197)
Yuma	(334,807)	(11,463)
Total	(1,623,091)	(6,808,337)

Table H-129
Estimated Change In Tax Impact as a Result of a 1,200,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(3,980,692)
Pinal	(704,247)	(5,427,747)
Pima	-	(1,136,395)
Mohave	(322,913)	-
La Paz	(225,042)	(102,004)
Yuma	(400,644)	(20,076)
Total	(1,821,600)	(10,666,914)

Table H-130
Estimated Change In Tax Impact as a Result of a 1,800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(5,185,979)
Pinal	(704,247)	(5,784,767)
Pima	-	(1,778,643)
Mohave	(539,741)	-
La Paz	(396,513)	(144,118)
Yuma	(839,944)	(38,981)
Total	(2,649,199)	(12,932,488)

Table H-131
Estimated Change In Tax Impact as a Result of a 2,500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2027

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	(168,754)	(5,185,979)
Pinal	(704,247)	(5,784,767)
Pima	-	(1,778,643)
Mohave	(539,741)	-
La Paz	(396,513)	(144,118)
Yuma	(4,124,950)	(38,981)
Total	(5,934,205)	(12,932,488)

H.5.5 2040 Tables

Table H-132
Estimated Change In Tax Impact as a Result of a 400,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Pima	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Total	-	-

Table H-133
Estimated Change In Tax Impact as a Result of a 500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,126,044)
Pinal	(120,988)	(1,547,603)
Pima	-	(413,261)
Mohave	(130,946)	-
La Paz	(64,957)	(27,183)
Yuma	(124,695)	-
Total	(441,586)	(4,114,091)

Table H-134
Estimated Change In Tax Impact as a Result of a 600,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,230,801)
Pinal	(120,988)	(1,758,163)
Pima	-	(426,341)
Mohave	(155,761)	-
La Paz	(82,510)	(36,820)
Yuma	(166,718)	(741)
Total	(525,977)	(4,452,866)

Table H-135
Estimated Change In Tax Impact as a Result of a 800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,533,532)
Pinal	(120,988)-	(2,161,202)
Pima	-	(576,893)
Mohave	(205,473)	-
La Paz	(117,068)	(58,359)
Yuma	(250,762)	(4,989)
Total	(694,291)	(5,334,975)

Table H-136
Estimated Change In Tax Impact as a Result of a 1,000,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,948,199)
Pinal	(120,988)-	(2,828,015)
Pima	-	(820,130)
Mohave	(255,036)	-
La Paz	(160,247)	(80,197)
Yuma	(334,807)	(11,463)
Total	(871,078)	(6,688,004)

Table H-137
Estimated Change In Tax Impact as a Result of a 1,200,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(3,412,786)
Pinal	(120,988)-	(3,621,618)
Pima	-	(1,064,698)
Mohave	(322,913)	-
La Paz	(255,042)	(102,004)
Yuma	(400,644)	(20,076)
Total	(1,069,587)	(8,221,182)

Table H-138
Estimated Change In Tax Impact as a Result of a 1,800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(4,600,757)
Pinal	(120,988)-	(6,171,479)
Pima	-	(1,690,113)
Mohave	(539,741)	-
La Paz	(396,513)	(144,118)
Yuma	(900,988)	(38,981)
Total	(1,958,230)	(12,645,448)

Table H-139
Estimated Change In Tax Impact as a Result of a 2,500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2040

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Pima	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Total	-	-

H.5.6 2060 Tables

Table H-140
Estimated Change In Tax Impact as a Result of a 400,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pima	-	-
Pinal	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Total	-	-

Table H-141
Estimated Change In Tax Impact as a Result of a 500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(1,909,885)
Pinal	(109,209)	(1,455,759)
Pima	-	(373,380)
Mohave	(130,946)	-
La Paz	(64,957)	(27,183)
Yuma	(124,695)	-
Total	(429,807)	(3,766,207)

Table H-142
estimated Change In Tax Impact as a Result of a 600,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,018,402)
Pinal	(109,209)	(1,658,699)
Pima	-	(388,161)
Mohave	(155,761)	-
La Paz	(82,510)	(36,820)
Yuma	(166,718)	(741)
Total	(514,198)	(4,102,823)

Table H-143
Estimated Change In Tax Impact as a Result of a 800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,319,075)
Pinal	(109,209)	(3,438,404)
Pima	-	(537,962)
Mohave	(205,473)	-
La Paz	(117,068)	(58,359)
Yuma	(250,762)	(4,989)
Total	(682,512)	(6,358,789)

Table H-144
Estimated Change In Tax Impact as a Result of a 1,000,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(2,704,470)
Pinal	(109,209)	(3,438,404)
Pima	-	(710,589)
Mohave	(255,036)	-
La Paz	(160,247)	(80,197)
Yuma	(334,807)	(11,463)
Total	(859,299)	(6,945,123)

Table H-145
Estimated Change In Tax Impact as a Result of a 1,200,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(3,168,679)
Pinal	(109,209)	(3,438,404)
Pima	-	(999,610)
Mohave	(322,913)	-
La Paz	(225,042)	(102,004)
Yuma	(403,062)	(20,076)
Total	(1,060,226)	(7,728,773)

Table H-146
Estimated Change In Tax Impact as a Result of a 1,800,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	(4,356,512)
Pinal	(109,209)	(6,340,527)
Pima	-	(1,624,772)
Mohave	(539,741)	-
La Paz	(396,513)	(144,118)
Yuma	(901,006)	(38,981)
Total	(1,946,469)	(12,152,341)

Table H-147
Estimated Change In Tax Impact as a Result of a 2,500,000 af
shortage to Non-Indian and Indian Agricultural Lands in Arizona—2060

County	Non-Indian Agricultural Land Total	Indian Agricultural Lands Total
Maricopa	-	-
Pinal	-	-
Pima	-	-
Mohave	-	-
La Paz	-	-
Yuma	-	-
Total	-	-

H.6 Analysis of Potential Positive and Negative Economic Effects of a Voluntary Conservation Program

This additional assessment considers potential positive and negative economic effects of a voluntary conservation program. Section 14.4 in the EIS discussed the potential socioeconomic effects of the proposed federal action. The associated impact analyses considered the potential impacts from voluntary or involuntary water delivery reductions. The voluntary water delivery reductions would be associated with a voluntary water conservation program as postulated under the Conservation Before Shortage Alternative proposal. The involuntary water delivery reductions would occur as a result of a Shortage Condition.

The assessment provided in the Draft EIS (February 2007) did not attempt to quantify the economic benefits of a voluntary conservation following program. Under such a program, there is an assumption that some of the effects that would result from the voluntary reduction in agricultural production might be offset by payments made to farm owners. Reclamation did not include this type of quantitative assessment due to the many uncertainties regarding how such a program would be implemented, including the geographic extent of the participants, the level of participation, the economic characteristic and demographics of the affected area, crop types that would be affected, and payment amounts made to farm owners and operators to forego crop production. This section was added to the Final EIS to describe some of the socioeconomic effects that may result in the event a voluntary fallowing program is implemented.

H.6.1 Methodology and Study Approach

For this assessment, the positive regional economic gains could include the payments to operators and resulting investments in equipment, land improvements, and non-farm related expenditures made in the local economy. The adverse economic effects could include the loss of farm-related expenditures on labor and other inputs necessary to grow, harvest, transport and sale of crops. To better understand the economics of these types of programs, a literature search for documented programs was conducted and the information gathered from existing programs was used as the bases for this assessment.

H.6.1.1 Existing Studies

There is limited documentation on previous or existing voluntary conservation programs. Two recent studies that estimated the socioeconomic effects of voluntary land fallowing programs include programs occurring on lands within the Palo Verde Irrigation District (PVID) and the Imperial Irrigation District (IID) (Local Entity and San Diego County Water Authority 2004, and Palo Verde Irrigation District 2002). The documentation available for these two programs was reviewed along with other studies that estimated payments that farmers would accept to forego crop production (Colby et al. 2006). Information contained in these studies was used as input to the subject semi-quantitative assessment of the socioeconomic effects of a voluntarily conservation program.

H.6.1.2 Water Delivery Reduction Volumes Considered

A water delivery reduction volume of 500 kaf was selected for purposes of this assessment because shortage related water delivery reductions of this magnitude had the greatest probability of occurrence during the interim period (2008 through 2026) as shown in Tables 4.4-5 and 4.4-6 in this Final EIS. The probability of occurrence for this level of shortage range from 14 percent in 2017 to 19 percent in 2026.

H.6.1.3 Potentially Affected Land Acreage

A 500 kaf water delivery reduction to the Lower Division states in 2017 could potentially result in fallowing of up to 86,000 acres of farm land (Table 4.14-1 in Section 14.4 of this Final EIS). Reclamation's Shortage Allocation Model (Section 4.2 and Appendix G) was used to estimate the distribution of water delivery reduction among the Lower Division states and Mexico, and among the Colorado River water users within each of the three Lower Division states (Arizona, California, and Nevada).

The 500 kaf shortage value was evaluated by the Shortage Allocation Model and the amount of shortage that would be allocated to various agricultural users was generated. The output from the Shortage Allocation Model was used as input to another spreadsheet model developed by Reclamation that estimates changes in agricultural production and production value. Based on the amount of shortage realized in each county, the model estimates the amount of land that would be fallowed using the relative profitability of each crop. The model assumes that the least profitable crops are fallowed first. Once all of the irrigated land associated with the least profitable crop is fallowed, the model assumes that fallowing of the next-least profitable crop would commence. For the 500 kaf shortage evaluated in this discussion, approximately 86,000 acres would be removed from crop production consisting of 25,000 acres of cotton, 48,000 acres of grain, and 13,000 acres of forage crops.

H.6.1.4 Payment Structures

The documents reviewed showed that previous and existing voluntary conservation programs have incorporated a wide range of payment mechanisms and payment amounts to gain the participation of farm owners, water districts, and communities. For example, farmers in Arizona were thought to forgo crop production if they could receive a minimum per acre payment of \$68.15, \$29.78, and \$365.03 for cotton, grain, and forage crops, respectively. These payments are reported per acre of land payments (net return over variable costs per acre) to forgo production of the specified crop for one season on that particular acreage (Colby et al. 2006). Other fallowing programs include a one-time up front payment to farmers to ensure they participate in the fallowing program. For example, the PVID program included an entry payment of \$3,170 per acre and an annual payment of \$550 per acre (PVID 2002). In contrast, the IID program included one-time up front payments of \$308 to \$277 per acre (Local Entity and San Diego County Water Authority 2004).

For purposes of this assessment, the following two scenarios were evaluated:

- ◆ Scenario 1 estimated the socioeconomic costs and benefits based on crop payments to Arizona farmers indicated above; and

- ◆ Scenario 2 estimated the socioeconomic costs and benefits by applying the one-time and annual payments reported for the PVID program.

H.6.1.5 Program Administration

Establishing a voluntary fallowing program would require instituting some form of program administration. The cost of managing a voluntary fallowing program was not included in this assessment because the geographic location and timing of a program and the administrative costs are not known.

H.6.1.6 Regional Economic Offsets

It is difficult to estimate the amount of payments made to operators to forego crop production that would then be spent within the regional economy and thereby offset the losses in employment and income that would occur as a result of voluntarily fallowing croplands. The amount of offset would be driven by farm-related expenditures and expenditures made for other goods and services within the regional economy. Based on information reported in the studies conducted on the IID and PVID fallowing programs, participants in the voluntary fallowing program were expected to spend a portion of their payments for on-farm improvements and/or management activities that could benefit the regional economy. Expenditures could be made on land management activities such as weed control, land preparation, erosion control, new equipment purchases or other capital improvements, and debt retirement. The studies did not identify how payments may be divided among these improvements and activities.

An additional factor that would affect the degree to which payments could benefit regional economic activity is land ownership. Landowners not residing within the local area are less likely to spend any substantial portion of the payments within the local economy. As an example, the PVID study concluded that 40 percent of landowners participating in the PVID program were considered absentee (PVID 2002). Based on information reported in the 2002 Census of Agriculture (USDA 2002) approximately 26 percent of farms in Arizona were operated by off-farm operators. For purposes of this analysis, it was assumed that 74 percent of payments made to farmers would be spent within the local economy.

H.6.2 Comparison of Costs and Benefits

A comparison of the potential costs and benefits of two hypothetical voluntary conservation programs follows.

H.6.2.1 Voluntary Fallowing Program Based on Payments to Forgo Production of Specific Crop Types

A 500 kaf shortage is estimated to result in the loss of approximately 627 jobs and some \$23.8 million in personal income. It may be reasonable to assume that the compensation to farmers under a voluntary fallowing program could potentially offset some of these losses. Application of the multipliers derived from this analysis of loss of agricultural production indicate that expenditures made by operators in the regional economy as a result of payments made to fallow land could create an estimated 100 jobs and approximately \$4 million in personal income. Again, these expenditures could potentially partially offset the estimated losses in employment and income reported in this Final EIS.

H.6.2.2 Voluntary Fallowing Program Based on an Entry Payment and Per Acre Payment to Forgo Crop Production

A voluntary fallowing program based on the PVID program entry payment and annual payments would generate 2,500 additional jobs and \$95.6 million in personal income. A program with operator payments of this magnitude would be expected to offset the employment and income losses for a 500 kaf shortage reported in this Final EIS.

H.6.3 Conclusions

The compensation to farmers under a voluntary fallowing program could potentially offset some of the adverse socioeconomic effects of reducing agricultural production. The degree to which these payments would offset the adverse socioeconomic effects of fallowing agricultural lands would depend on the payment schemes and amounts associated with a particular program.

Instituting a voluntary fallowing program could result in positive economic effects. However, as suggested by the results of the two scenarios described above, estimating the socioeconomic effects of implementing a program with a reasonable degree of certainty is difficult without additional detail regarding payment amounts, geographic location, and timing. There are many variables that need to be considered and these will vary widely by region, program size, length of program, and the participating entities.

H.7 References

- Palo Verde Irrigation District. 2002. Socioeconomic Assessment of the Proposed Palo Verde Irrigation District Land Management, Crop Rotation and Water Supply Program, Final Report. Blythe, California. Prepared by M.Cubed, Oakland, California.
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- US Department of Agriculture, National Agricultural Statistics Service. 2002. Census of Agriculture, Arizona State and County Data.