



APPLIED ECONOMICS

**COMPARATIVE OPERATING COST ANALYSIS
FOR A FOOD PROCESSING FACILITY
CITY OF YUMA, ARIZONA**

PREPARED BY:

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1.0 EXECUTIVE SUMMARY

Applied Economics was retained by the City of Yuma to prepare a comparative operating cost analysis for a 65-employee food processing facility. The analysis compares a location in Yuma, Arizona to an alternative location in Fresno, California and estimates overall operating costs in each location over a 10 year period on the basis of wages, benefits, real estate, taxes and utilities.

Project Description

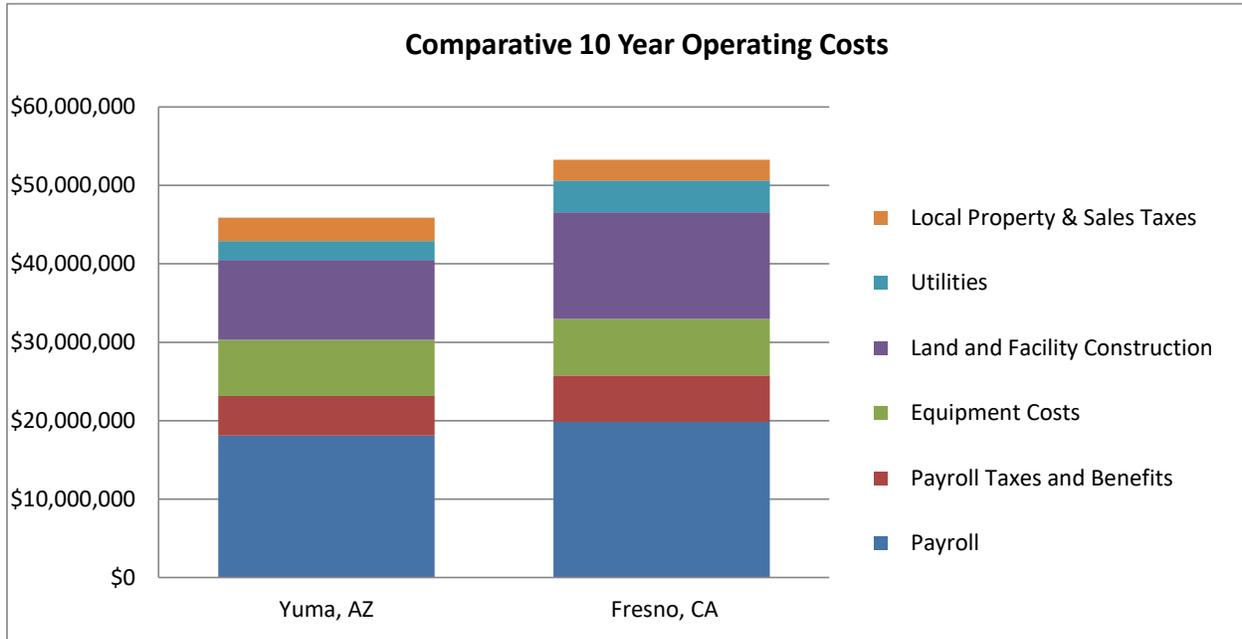
- The company would have 65 non-exempt employees working a single shift (**Figure 1**). They would employ a mix of machine operators and tenders, packers, inspectors and other production workers. Occupational wages vary by location.
- They would build an 80,000 square foot facility on 15 acres, and purchase \$7.2 million of manufacturing equipment. The cost of land and construction vary by location.
- Electricity usage is estimated at 180,000 kWh per month with a 65 percent load factor; 610,000 gallons of water and 410,000 gallons of sewer discharge per month are assumed.

FIGURE 1
BASIC ASSUMPTIONS – FOOD PROCESSING PRO-FORMA

<u>Labor and Payroll</u>	
Total Employees	65
Annual Payroll	
Yuma, AZ	\$1,811,234
Fresno, CA	\$1,986,518
<u>Capital Expenditures</u>	
Manufacturing Equipment	\$7,200,000
<u>Land and Building Cost</u> (80,000 SF on 15 acres)	
Yuma, AZ	\$9,342,600
Fresno, CA	\$12,514,800
<u>Utilities</u>	
Electricity (65% Load Factor)	180,000 KWh per month/385 KW demand
Water	610,000 gallons/month, 2" Meter
Sewer	410,000 gallons/month

Summary of Results

- Total operating costs are 14 percent lower in Yuma at \$45.9 million over 10 years, compared to \$53.3 million in Fresno, California.
- The most significant difference between the two locations is in land and construction costs. The Fresno land and construction costs are roughly \$3.4 million higher than those in Yuma.



- Wages also vary considerably by location. Based on prevailing industry wages for typical occupations in food processing, annual payroll costs are estimated at \$18.1 million in Yuma versus \$19.9 million per year in Fresno.
- Finally, there are significant differences in electricity costs between the locations. Electric, water and sewer costs combined are 41 percent higher in Fresno at approximately \$4.1 million over ten years, versus \$2.4 million in Yuma.

2.0 COMPARATIVE OPERATING COSTS

Land and Construction

This analysis assumes that the company would purchase 15 acres and build an 80,000 square foot building. Land costs were obtained from listings data for industrial land in each location. An average cost per acre was computed based on the available comparable properties. Industrial land costs are significantly higher in Fresno at \$122,000 per acre, compared to \$75,000 per acre in Yuma (**Figure 2**).

Construction costs are based on the average cost per square foot for a single-story manufacturing facility from R.S. Means, adjusted by the city cost index for each location. Construction costs for an 80,000 square foot building are estimated at \$8.2 million in Yuma, versus \$10.7 million in Fresno. Note that the total annual cost listed for each city in Figure 2 represents the estimated annual loan payment on a 10-year commercial loan at 6 percent interest with a 20 percent down payment.

FIGURE 2
REAL ESTATE COSTS

Assumptions: 80,000 SF manufacturing facility on a 15 acre parcel.
Construction costs of \$120 per square foot, adjusted for local labor and materials cost index.

Yuma, AZ

Land	\$1,125,000
Building	\$8,217,600
Total Annual Cost ¹	\$1,015,488

Fresno, CA

Land	\$1,830,000
Building	\$10,684,800
Total Annual Cost ¹	\$1,360,288

Sources: Loopnet industrial land listings, January 2018; R.S. Means 2017 Building Construction Cost and Square Foot Cost Data.

¹ Total annual cost for new construction represents the annual payment on a commercial real estate loan for 10 years, at 6 percent interest, on 80 percent of the land and building cost.

Payroll and Benefits

The manufacturer in this comparison would employ 65 people. Payroll estimates are based on occupational wages for ten occupations that are representative of the workforce mix for a food processing operation. Key occupations include packaging and filling machine operators and tenders, hand packers, production supervisors and managers, inspectors, maintenance workers, truck and tractor operators, material movers and machinery mechanics. In total, wages in Yuma are about 10 percent lower than those in Fresno, although differences are greatest for maintenance and repair workers, hand packers and machinery mechanics. Annual payroll is estimated at \$1.8 million in Yuma, versus \$2.0 million in Fresno (**Figure 3**).

**FIGURE 3
WORKFORCE ASSUMPTIONS AND TYPICAL WAGES
FOOD PROCESSING**

SOC Code	Occupation Title	Employees	Annual Wages	
			Yuma, AZ	Fresno, CA
51-9111	Packaging and filling machine operators and tenders	25	\$26,000	\$27,810
53-7064	Packers and packagers, hand	9	\$18,987	\$22,443
51-9061	Inspectors, testers, sorters, samplers, and weighers	6	\$29,603	\$32,926
53-7051	Industrial truck and tractor operators	6	\$27,400	\$27,830
49-9041	Industrial machinery mechanics	4	\$42,813	\$49,982
51-9198	Helpers--production workers	4	\$23,005	\$24,586
53-7062	Laborers and freight, stock, and material movers, hand	4	\$24,399	\$25,168
49-9071	Maintenance and repair workers, general	3	\$28,000	\$34,424
51-1011	First-line supervisors of production and operating workers	3	\$46,474	\$49,525
11-3051	Industrial production managers	1	\$64,043	\$73,954
Total Annual Payroll		65	\$1,811,234	\$1,986,518

Source: Arizona Office of Economic Opportunity, 2016 Occupational Employment and Wage Estimates; California Employment Development Department, OES Employment and Wages 1Q 2017.

The differences in wage rates not only impact payroll costs, but also have an impact on benefit costs. Total annual benefit costs are estimated at \$502,000 per year in Yuma, or 28 percent of payroll versus \$590,000 in Fresno, or about 30 percent of payroll (**Figure 4**).

Benefits shown here include Social Security and Medicare, which are estimated at 7.65 percent of payroll. Health insurance costs represent state averages for the employer portion of the annual premium for employees enrolled in employer-based health plans. Health insurance costs are based on data from the Kaiser Foundation.

Benefits also include unemployment insurance. In both Arizona and California, unemployment insurance applies to the first \$7,000 of payroll per employee. Rates vary depending on individual employer experience. For the purpose of this analysis, a new employer rate of 2.0 percent is applied in Arizona and 3.4 percent in California, using rates collected by the U.S. Department of Labor.

Worker's compensation rates vary by occupation, but an average manufacturing rate of 5.21 percent of payroll is applied for California and 2.49 percent for Arizona. These rates are based on survey information collected by the Oregon Department of Consumer and Business Services. California typically has some of the highest worker's compensation rates in the country.

**FIGURE 4
PAYROLL TAXES AND BENEFITS**

Assumptions: Unemployment insurance is based on the new employer rate: California 3.4% of first \$7,000 of wages, Arizona 2% of first \$7,000 of wages. Workers compensation is calculated as a percent of payroll: California 5.21%, Arizona 2.49%.

Yuma, AZ	\$502,354
Social Security and Medicare	\$138,559
Health Insurance ¹	\$309,595
Unemployment Insurance	\$9,100
Worker's Compensation	\$45,100
Fresno, CA	\$589,956
Social Security and Medicare	\$151,969
Health Insurance ¹	\$319,020
Unemployment Insurance	\$15,470
Worker's Compensation	\$103,498

Source: Kaiser Foundation State Health Facts, 2016 data; U.S. Department of Labor, Significant Provisions of State Unemployment Insurance Laws, July 2017; Oregon Department of Consumer and Business Services, Worker's Compensation Premium Rate Ranking Study, 2016 - typical premium rates for manufacturers.

¹ Average annual single premium (employer portion) per enrolled employee for employer-based health insurance.

Utilities

The manufacturing facility in this analysis is assumed to have monthly electricity consumption of 180,000 kWh and a 65 percent load factor, or 385 kW demand per month. Total electricity costs are estimated at \$210,000 per year in Yuma and \$383,000 per year in Fresno (**Figure 5**). Annual water cost estimates assume usage of 610,000 gallons per month and a two inch meter, while sewer usage is assumed to be 410,000 gallons per month. In total, water and sewer costs are estimated to be \$31,000 per year in Yuma versus \$22,000 per year in Fresno. However, the differences in water and sewer costs are more than offset by lower electric rates with APS versus PG&E.

**FIGURE 5
ANNUAL UTILITY COSTS**

ANNUAL ELECTRIC COSTS

Assumptions: 180,000 kWh/month, 385 kW/month (65% Load Factor)

Yuma, AZ (APS)	\$209,580
Fresno, CA (PG&E)	\$382,897

Source: Arizona Public Service Rate Schedule E-32; Pacific Gas & Electric Rate Schedule A-10.

ANNUAL WATER COSTS

Assumptions: 610,000 gallons/month, 2 " meter

Yuma, AZ (City of Yuma)	\$17,235
Fresno, CA (City of Fresno)	\$15,089

Source: City of Yuma, Commercial Water Rates (inside the City) effective 1/1/18; City of Fresno, Master Fee Schedule, Water Rates effective 7/1/17.

ANNUAL SEWER COSTS

Assumptions: 410,000 gallons/month

Yuma, AZ (City of Yuma)	\$13,550
Fresno, CA (City of Fresno)	\$7,085

Source: City of Yuma, Non-Residential Sewer Rates (Inside the City) effective 1/1/18; City of Fresno, Master Fee Schedule, Low Industrial Wastewater Rates effective 7/1/17.

Sales Taxes

Sales taxes can potentially apply to the purchase of machinery, utilities and construction materials. The taxability of these specific items varies by state. In Arizona, manufacturing equipment is exempt from sales tax, which saves the company an estimated \$606,000 on a \$7.2 million equipment purchase. In California, manufacturing equipment is only exempt from the 3.9375 percent state tax, resulting in a savings of about \$284,000. Utilities are not subject to sales tax in California and the City of Fresno does not impose a local utility user tax. Electricity and water utilities are subject to sales tax in Arizona.

The total state and local sales tax rate is 8.412 percent in Yuma and 7.975 percent in Fresno. Total sales taxes over 10 years are estimated to be \$640,000 in Yuma and \$845,000 in Fresno (**Figure 6**).

**FIGURE 6
LOCAL SALES TAX COMPARISON**

Assumptions: Sales and use tax calculation includes purchases of machinery, utilities and construction materials. Exemptions and tax rates vary by state. Analysis assumes 65% of construction cost is materials. Construction costs vary by location. Note that manufacturing equipment is exempt from all sales tax in Arizona and exempt from state sales tax (3.9375%) in California. Electricity, water and sewer are exempt from sales tax in California and no utility user taxes apply in the City of Fresno.

Yuma, AZ		8.412% effective state & local tax rate									
	Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
no abatement	\$1,245,782	\$1,074,066	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080
Mfg Exemptions	(\$605,664)	(\$605,664)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Tax Due	\$640,118	\$468,402	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080	\$19,080

Fresno, CA		7.975% effective state & local tax rate 0.00% local utility user tax									
	Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
no abatement	\$1,128,073	\$1,128,073	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mfg Exemptions	(\$283,500)	(\$283,500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Tax Due	\$844,573	\$844,573	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Property Taxes

Property taxes apply to real and personal property in both states. In this analysis, the value of the land and building are multiplied by 85 percent to approximate assessed value. For personal property, the \$7.2 million of equipment is depreciated based on a 10-year schedule that would apply to food processing equipment in each state. In Arizona, accelerated depreciation could be applied as well, which would result in a tax savings of \$296,000 over the first five years.

The total effective tax rate is approximately 2.5 percent in Yuma and 1.3 percent in Fresno. Real and personal property taxes total \$2.3 million over 10 years in Yuma versus \$1.8 million in Fresno (**Figure 8**).

**FIGURE 8
PROPERTY TAX COMPARISON**

Assumptions: Value of New Machinery: \$7.2 million; facility value varies by location. Machinery and equipment is depreciated on a 10 year schedule. Real property has not been depreciated in this example. No replacement equipment purchases are assumed. Effective Tax Rates: Yuma 2.5%, Fresno 1.3%.

Yuma, AZ		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Real Property		\$1,821,643	\$165,604	\$165,604	\$165,604	\$189,262	\$189,262	\$189,262	\$189,262	\$189,262	\$189,262	\$189,262
Personal Property		\$817,820	\$160,588	\$141,286	\$123,753	\$107,984	\$90,496	\$74,773	\$57,337	\$38,192	\$19,079	\$4,332
Accelerated Depreciation		(\$296,124)	(\$120,441)	(\$83,359)	(\$53,214)	(\$29,156)	(\$9,955)	\$0	\$0	\$0	\$0	\$0
Net Tax Due		\$2,343,340	\$205,751	\$223,531	\$236,143	\$268,090	\$269,803	\$264,035	\$246,598	\$227,453	\$208,341	\$193,594

Fresno, CA		Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Real Property		\$1,326,757	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676	\$132,676
Personal Property		\$488,544	\$81,719	\$74,373	\$66,866	\$59,197	\$51,366	\$44,317	\$37,124	\$30,344	\$24,471	\$18,768
Total		\$1,815,302	\$214,395	\$207,049	\$199,542	\$191,873	\$184,042	\$176,993	\$169,799	\$163,019	\$157,146	\$151,444

Summary of Results

Yuma offers a significantly lower cost location for food processing than Fresno, California. Over a ten-year period, the cost of a location in Yuma would be about 14 percent lower than a similar location in Fresno (**Figure 9**). Payroll accounts for close to 40 percent of total operating costs in both locations and the occupational wages for food processing in Yuma average about nine percent less than those in Fresno. The combination of a lower wage base and lower payroll tax rates also results in payroll taxes and benefits that are 15 percent lower in Yuma. Finally, there are significant advantages to a location in Yuma based on real estate costs, primarily due to the cost of land.

FIGURE 9
SUMMARY OF COMPARATIVE OPERATING COSTS FOR FOOD PROCESSING

	Yuma, AZ	Fresno, CA
Operating Costs - 10 Year Total	\$45,877,862	\$53,278,206
Payroll	\$18,112,340	\$19,865,180
Payroll Taxes and Benefits	\$5,023,541	\$5,899,562
Equipment Costs	\$7,200,000	\$7,200,000
Land and Facility Construction*	\$10,154,880	\$13,602,883
Utilities (Electric, Water & Sewer)	\$2,403,643	\$4,050,707
Local Property & Sales Taxes	\$2,983,458	\$2,659,875

*Facility cost represents 10 years of annual payments on commercial real estate loan.