Chapter 1
Land Use

Introduction

This background report provides information that will be used in the development of the land use alternatives for the General Plan and provide a basis for decisions on land use designations and policies in the Land Use Element of the General Plan. The report provides a basic understanding of the existing conditions in the county as well as projections of future growth.

The General Plan will respond to projections of future growth, and may contain policies intended to change current growth trends. The projections in this report therefore provide a basis for development of Yolo County's policies, and not a statement of policy.

This report addresses the following topics:

- Existing Land Use,
- Population, Employment, and Housing Forecasts, and
- Existing Economic Base and Employment.

Existing Land Use

Introduction

This report provides information to support the General Plan update, including existing land uses in the County, parcel sizes, and relative proportions of land uses. Although this report is intended to characterize existing uses of land, the land use categories are defined in such a way as to allow for comparisons with the County's General Plan land use designations. In this way, it can be determined where the existing land use patterns vary from the intent of the current General Plan. Parcel sizes are described in this report where relevant for policymaking in the updated Land Use Element. However, because this report relies on information from the County Assessor, the parcel information represents assessor's parcel numbers (APNs), and not necessarily legal

conforming parcels. In some instances, because of different uses of land occurring within one legal parcel, the Assessor's Office may assign more than one APN to only one legal parcel. In other instances, adjacent legal parcels under the same ownership with the same land use may only have one APN assigned. Assessor's information is generated merely for the purposes of taxation, and does represent County land use policy.

The categories defined in this report for the purpose of analyzing existing land uses also reflect the character, relative importance, and prevailing uses of land in Yolo County. For example, while this report defines four categories that indicate agricultural use of land, there are only three urban commercial land use categories (commercial, office, and industrial). This reflects the importance of farming relative to urban development in Yolo County. Existing land use categories are:

- Agricultural Commodities,[1]
- Orchards/Vineyards,
- Cultivated Agricultural Lands,
- Livestock,
- Commercial,
- Office,
- Industrial,
- Public Open Space,[2]
- Rural Residential,[3]
- Residential, Single Family,
- Residential, Mobile Home Park,
- Residential, Multi Family,

[1] The agricultural commodities category includes agricultural land uses not related to cultivation or production, such as food processing and other similar activities.

[2] Public open space is owned by a public agency, not actively cultivated or used for livestock, and undeveloped. The assessor's use code information, on which this report is based, does not provide information on whether the land is owned for a defined open space purpose, such as stormwater management. However, an effort was made through preparation of this report to distinguish lands owned by a public agency, such as the Bureau of Land Management properties in northwestern Yolo County near the Lake County boundary, where no public facilities are planned, from other property that may be used for facilities or otherwise will not remain in open space. Lands to be used for public facilities are classified as public/quasi-public.

[3] Rural residential development represents home sites in agricultural areas outside of cities and unincorporated communities. The Assessor has, in many instances, assigned a separate parcel number (the unit of analysis for this report) to a home site located on the same legal parcel as a cultivated field or range land for tax assessment purposes. The home site would be classified in this report as rural residential while the field would be identified separately as cultivated agricultural lands. Rural residential development includes parcels with one or more homes, as well as labor camps. Recent rural residential development in Yolo County involves the construction of large homes on large pieces of property in rural areas that may or may not continue to be used for agricultural purposes. For these reasons and others, it is important to remember that this report is a snapshot in time that is attempting to describe conditions that are in fact constantly changing.

- Public/Quasi-Public,[4]
- Private Recreational (Open Space),[5]
- Private Recreational (Developed),[6]
- Water, and
- Roads.

Table Land-Use-1 illustrates the relationship between the categories used in this report to depict the existing array of land uses in the County and the current zoning district designations. This table is not an expression of County policy regarding allowed land uses, but is simply intended to show the types of land uses that would be expected within the various zoning districts applied throughout the County.

Sources of Information

In preparation of this report, data from the Yolo County Assessor, the Yolo County Planning and Public Works Department, the U.S. Census Bureau, the California Department of Finance (DOF), and the California Employment Development Department were analyzed, and aerial photography of Yolo County was reviewed. Based on these sources, existing land uses in Yolo County were characterized and verified.

[4] Public/quasi-public land is that which is owned by a public agency and either developed with offices, corporate yard, or other public use, or undeveloped and reserved for future expansion or new development of public infrastructure or other facilities.

[5] Private recreational (open space) lands represent those that are owned by a private entity (not a public agency) and that are developed with recreational uses that involve open space, such as golf courses, hunting clubs, and common areas for recreation in private development projects.

[6] Private recreational (developed) lands represent those that are owned by a private entity (not a public agency) but that are developed with recreational uses that have more developed characteristics, such as arenas, theaters, recreation centers, swimming pools, and recreational vehicle parks.

Table Land-Use-1. Existing Zoning and Existing Land Use Categories

Yolo County Zoning District		Example Existing Land Use Categories
A-1	Agricultural General Zone	Cultivated Agricultural Lands Orchards/Vineyards Livestock
A-E	Agricultural Exclusive Zone	Cultivated Agricultural Lands Orchards/Vineyards Livestock
AGI	Agricultural Industry Zone	Agricultural Commodities
A-P	Agricultural Preserve Zone	Cultivated Agricultural Lands Orchards/Vineyards Livestock
C-1	Neighborhood Commercial Zone	Commercial
C-2	Community Commercial Zone	Commercial
C-3	General Commercial Zone	Commercial
C-H	Highway Service Commercial Zone	Commercial
M-1	Light Industrial Zone	Industrial
M-2	Heavy Industrial Zone	Industrial
MHF	Mobile Home Combining Zone	Residential, Mobile Home Park
M-L	Limited Industrial Zone	Industrial
POS	Public Open Space Zone	Public Open Space Public/Quasi-Public
PR	Park and Recreation Zone	Public Open Space Private Recreational (Open Space) Private Recreational (Developed)
R-1	Residential One-Family Zone	Residential, Single Family
R-2	Residential One-Family or Duplex Zone	Residential, Single Family
R-3	Multiple-Family Residential Zone	Residential, Multi-Family
R-4	Apartment-Professional Zone	Residential, Multi-Family Office
RRA	Residential, Rural, Agricultural Zone	Rural Residential
R-S	Residential Suburban Zone	Residential, Single Family
RVP	Recreational Vehicle Park Combining Zone	Private Recreational (Developed) Private Recreational (Open Space)
WF	Waterfront Zone	Various

Land Uses in Yolo County—Incorporated and Unincorporated Areas

According to the 1983 General Plan, the County comprises 1,035 square miles of land area (approximately 661,760 acres). This figure appears to overestimate the landmass of Yolo County.

According to the U.S. Census, the total land area of the County is 1,013 square miles (648,320 acres).[7] According to the California Department of Finance 2002 Statistical Abstract, the total *land* area (not including water) of the County is 1,013.3 square miles (648,510). The DOF cites the U.S. Census TIGER files and the Department of Water Resources, Division of Planning & Local Assistance as sources. Using information from the County Assessor, nearly 641,000 of the County's approximately 650,000 acres have been tabulated. Railroad and roadway rights-of-way are major unknown land uses and account for much of the difference between the total acres in Assessor records and the total acreage of Yolo County.

The population of the County in 2005 is anticipated to be 184,348—a population density of 182 persons per square mile. The 2000 population density, according to the U.S. Census, was 167 persons per square mile. For comparison, California's overall population density is 220 persons per square mile and San Francisco, the most densely populated county in the state, has more than 17,000 persons per square mile.[8] For comparative purposes, Solano County has 476 persons per square mile, Tehama County has 19 persons per square mile, Tulare County has 76 persons per square mile, and Merced County has 109 persons per square mile.[9]

As was the case in 1983, during the last comprehensive General Plan update, the majority of County land is used for cultivated agricultural cropland. Livestock grazing is the next most common land use. Public open space is next in terms of total acreage. Orchards and vineyards, which are distinguished from cultivated agricultural lands for the purposes of this study, are another important County land use (Table Land-Use-2). Rural residential development is the largest user of residential land in the County. Rural residential land is distinguished from agriculture by the lack of commercial agricultural activity. Such parcels could be re-categorized as "agricultural" if commercial agricultural activity were to occur on these properties. Figures Land-Use-1 to Land-Use-7 depict existing land uses.

[7] For a description on how the Census Bureau derives land area, see: http://quickfacts.census.gov/qfd/meta/long_101619.htm.

[8] Legislative Analyst's Office. *2000 Cal Facts.* December 2000.

[9] U.S. Census Bureau 2000.

Table Land-Use-2. County Unincorporated Area and Incorporated Cities: Existing Land Uses*

Existing Land Use	Total Acres	Percentage
Agricultural commodities	333	0%
Commercial	1,933	0%
Cultivated agricultural lands	346,397	54%
Industrial	8,350	1%
Livestock	143,504	22%
Office	252	0%
Orchards/vineyards	43,060	7%
Private recreational (developed)	247	0%
Private recreational (open space)	3,139	0%
Public open space	48,104	8%
Public/quasi-public	12,854	2%
Residential, mobile home park	275	0%
Residential, multi-family	1,315	0%
Residential, single family	6,872	1%
Roads	532	0%
Rural residential	10,664	2%
Unknown	792	0%
Vacant	4,504	1%
Water	7,764	1%
Total Known	**640,099**	
Total*	**640,891**	

* Does not account for most lands in railroad and public rights-of-way.

Just 4% of total County lands are within the jurisdictional boundaries of a city, though the vast majority of population resides in cities. Correspondingly, residential land uses occupy the largest percentage of city lands. Commercial and industrial land uses are also more prevalent in the cities compared to the unincorporated County. Approximately 4,500 acres of land countywide (of which more than 3,300 acres are in the cities) are vacant as of the writing of this document and designated for some type of urban development (Table Land-Use-3).

Table Land-Use-3. Existing County Versus City Land Uses

	Unincorporated County		Incorporated City Land	
Land Use	Acres	%	Acres	%
Agricultural commodities	265	0%	67	0%
Commercial	859	0%	1,074	4%
Cultivated agricultural lands	342,934	56%	3,463	14%
Industrial	6,045	1%	2,305	10%
Livestock	143,459	23%	45	0%
Office	3	0%	249	1%
Orchards/vineyards	42,990	7%	70	0%
Private recreational (developed)	156	0%	91	0%
Private recreational (open space)	2,874	0%	265	1%
Public open space	47,863	8%	241	1%
Public/quasi-public	8,416	1%	4,438	18%
Residential, mobile home park	62	0%	213	1%
Residential, multi-family	109	0%	1,205	5%
Residential, single family	841	0%	6,031	25%
Roads	520	0%	12	0%
Rural residential	9,987	2%	677	3%
Unknown	244	0%	547	2%
Vacant	1,158	0%	3,346	14%
Water	7,358	1%	406	2%
Total Known	**615,900**	**96%**	**24,199**	**4%**
Total	**616,145**	**96%**	**24,746**	**4%**

As shown in Table Land-Use-4, the most prevalent urban non-agricultural commercial land use in the County (in overall land area) is industrial development, a land use typically known to have large land demand. Commercial retail development and office land uses are much more common in the incorporated portions of the County than in unincorporated areas. Public/Quasi-Public land uses also account for a much larger percentage of city lands than they do county lands.

Table Land-Use-4. Existing Urban Commercial Land Uses

	Commercial		Industrial		Office		Public/Quasi-Public		Vacant	
Statistics	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.
Acres	859	1,074	6,045	2,305	3	249	8,416	4,438	1,158	3,346
Total Acres	**1,933**		**8,350**		**252**		**12,854**		**4,504**	

Notes: Uninc. = unincorporated.
Inc. = incorporated.

As would be expected, agricultural land uses are by far more prevalent in the unincorporated portions of the County than in the cities, although the cities also do have a substantial amount of cultivated agricultural lands. The parcel size of city cultivated agricultural land is much smaller than County cultivated lands (Table Land-Use-5)

Table Land-Use-5. Agricultural Land

	Agricultural Commodities		Cultivated Agricultural Lands		Livestock		Orchards/ Vineyards	
Statistics	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.
Acres	265	67	342,934	3,463	143,459	45	42,990	70
Total Acres	**332**		**346,397**		**143,504**		**43,060**	

Notes: Uninc. = unincorporated.
Inc. = incorporated.

Incorporated areas of the County have a larger percentage of mobile home parks, multi-family residential development, and single-family residential development, while unincorporated residential land is mostly dedicated to rural residential use (Table Land-Use-6). Rural residential land, as identified in this existing land use report appears to represent residential land on relatively large parcels (mostly more than one acre) outside of cities and outside of developed unincorporated communities. This land use category does not necessarily correspond with the RRA zoning district designation (Residential, Rural, Agricultural Zone).

Table Land-Use-6. Residential Land

	Mobile Home Park		Multi Family		Single Family		Rural	
Statistics	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.	Uninc.	Inc.
Acres	62	213	109	1,205	841	6,031	9,987	677
Total Acres	**275**		**1,314**		**6,872**		**10,664**	

Notes: Uninc. = unincorporated.
Inc. = incorporated.

Unincorporated Yolo County Lands

The following descriptions and statistics reflect only property outside of incorporated city boundaries in the County.

Agricultural Land

The vast majority of Yolo County unincorporated land, and Yolo County land in general is used for agricultural production, although approximately 4,300 acres of important farmland were converted to some type of urban land use between 1992

and 2002.[10,11] Of the County's agricultural land, cultivated crops are the most prevalent, accounting for the most individual properties and by far the most land area (Table Land-Use-7). Median parcel sizes are of approximately 69 acres and average parcel sizes are of almost 109 acres. Orchards and vineyards have smaller parcel sizes.

Livestock, which includes grazing and pasture land, as well as more intensive animal operations, is another important agricultural land use in the unincorporated County, although the 143,459 acres shown in the table below may not capture all land used for grazing because grazing could occur on federally owned land that might have been classified as public open space. Agricultural commodities, a category that includes feed and grain mills and agricultural-related businesses, accounts for a small land area in the unincorporated County, but commodities are an important part of the County economy, and these land uses may occur more frequently in incorporated areas. Also, some food processing, which could arguably be classified as agricultural related *or* industrial land, has been classified as industrial for the purposes of this study.

Table Land-Use-7. Agricultural Land

Statistic	Agricultural Commodities	Cultivated Agricultural Lands	Livestock	Orchards/ Vineyards	Total
Average Parcel Size	12	109	199	56	114
Median Parcel Size	4	69	132	26	62
Minimum Parcel Size	0	0	0	0	0
Maximum Parcel Size	113	709	821	745	821
Total Acres	265	342,934	143,459	42,990	529,649
Number of Parcels	22	3,136	722	770	4,650

The Williamson Act establishes a mechanism for contracts between local governments and private landowners, restricting parcels of land to agricultural or related open space use. Landowners are taxed on the capitalization of the income from the land rather than the fair market value, and local governments receive an annual subvention of forgone property tax revenues from the State via the Open Space Subvention Act of 1971. In return, landowners retain their land in open space or agricultural use for at least 10 years. Land can be withdrawn from a Williamson Act contract through a 9-year process beginning with a non-renewal filing, during which taxes gradually increase to full levies.

[10] Important farmland includes Prime Farmland, Farmland of Statewide, Unique Farmland, and Farmland of Local Importance.

[11] California Department of Conservation Farmland Mapping and Monitoring Program, California Farmland Conversion Reports, 1992-1994, 1994-1996, 1996-1998, and 1998-2000; California Department of Conservation web site, http://www.consrv.ca.gov/dlrp/fmmp/.

Yolo County currently has almost 450,000 acres enrolled in Williamson Act contracts.[12] Of that, 61,321 acres are classified as Prime (within 3 miles of city limits). A total of 162,315 acres of non-prime lands are under contract.[13]

Public Land

The federal government owns 23,774 acres of land in unincorporated Yolo County. The State of California owns 12,328 acres of unincorporated Yolo County land, including the University of California, Davis (UCD) Farm, the main campus of the UCD and its research fields, State highway rights-of-way, California Department of Water Resources land (especially in the Yolo bypass area), and California Department of Fish and Game land. The County owns 2,671 acres of unincorporated land, used for offices, the Yolo County library, maintenance and storage yards, and other uses.

The existing land use category "public/quasi-public," includes not only government owned land, but also religious institutions, cemeteries, hospitals, and other land uses that provide some public service. Public/quasi-public land uses account for 8,416 acres of unincorporated land.[14]

Public open space in Yolo County is another major land use, accounting for almost 50,000 acres (Table Land-Use-8). Public open space properties are large—the maximum parcel in this category is 650 acres. The public open space category includes U.S. Bureau of Land Management property near Lake County and State owned land in the Yolo Bypass used for habitat purposes. Private recreational uses are not included in this category.

Table Land-Use-8. Public/Quasi-Public and Public Open Space Land

Statistic	Public/Quasi-Public	Public Open Space	Total
Average Parcel Size	39	224	131
Median Parcel Size	3	162	29
Minimum Parcel Size	0	0	0
Maximum Parcel Size	637	650	650
Total Acres	8,416	47,863	56,279
Number of Parcels	216	214	430

Residential Land

Residential land uses account for the most *developed* land in the County. Rural residential development is the largest residential user of land in the

[12] Yolo County. *General Plan Agricultural Element*. 2002.

[13] According to the California Department of Conservation.

[14] Though Native American land, such as that belonging to the Rumsey Rancheria tribe, is held in trust by the federal government, this land is classified according to the prevailing land use, and not as public land.

unincorporated County, and, according to information from the County Assessor and geographic information system (GIS) information from the Planning and Public Works Department, does not appear to include land where there is active agriculture (Table Land-Use-9). As noted above, rural residential land has the potential to become "agricultural" in use if commercial agricultural activity takes place on such properties.

Table Land-Use-9. Residential Land

Statistic	Mobile Home Park	Multi - Family	Single Family	Rural Residential	Total
Average Parcel Size	12.31	0.84	0.39	5.75	2.74
Median Parcel Size	9.03	0.18	0.23	3.04	0.48
Minimum Parcel Size	0.56	0.05	0.01	0.01	0.01
Maximum Parcel Size	33.14	30.67	40.16	159.08	159.08
Total Acres	62	109	841	9,987	10,987
Number of Parcels	5	130	2,139	1,736	4,009

Single-family residential development accounts for a greater number of parcels, but less overall land area compared to rural residential development. Multi-family residential development does not occur frequently in the unincorporated County, and mobile home parks occur less frequently still (mobile homes not in a mobile home park, which typically exhibit characteristics more akin to single-family development, are included in the single-family subcategory, not in the mobile home park subcategory).

Commercial, Industrial, and Office Land

Commercial, industrial, and office development accounts for a small portion of the overall land area in Yolo County (Table Land-Use-10). Commercial lands include retail and other non-industrial, non-professional office commercial land uses. The largest land user of the three is industry. As would be expected, parcel sizes for industrial development are larger than commercial and office land uses. Most industrial land is in gravel or other aggregate extraction and processing. Aggregate operations in the County are mainly concentrated along Cache Creek in the central portion of the County. Only a very small portion of unincorporated County land is in office development currently, although working offices may be attached to other primary land uses, and therefore may be undercounted using the methodology of this study.

Table Land-Use-10. Commercial, Industrial, and Office Land

Statistic	Commercial	Industrial	Office	Total
Average Parcel Size	7.04	31.32	0.34	21.32
Median Parcel Size	0.73	1.93	0.33	1.05
Minimum Parcel Size	0.04	0.01	0.07	0.01
Maximum Parcel Size	133	459	1	459
Total Acres	859	6,045	3	6,907
Number of Parcels	122	193	9	324

Private Recreational Land

Land characterized as private recreational land includes hunting clubs, privately owned auditoriums or other entertainment venues, and other passive and active recreational facilities. Recreational lands with open space value were distinguished from land uses that tend to be more urban and more developed (Table Land-Use-11). As would be expected, recreational lands with open space value tend to have parcel sizes that are larger than the more intensely developed facilities. This category does not include land protected by conservation easements because easements are not displayed in the spatially reference information from the County used to generate this report.

Table Land-Use-11. Private Recreational Land

Statistic	Developed	Open Space	Total
Average Parcel Size	7.09	44.22	34.83
Median Parcel Size	0.85	30.42	6.68
Minimum Parcel Size	0.13	0.10	0.10
Maximum Parcel Size	117	355	355
Total Acres	156	2,874	3,030
Number of Parcels	22	65	87

Other Land Uses

Vacant land designated for some type of urban development accounts for approximately 1,100 acres of unincorporated County land (Table Land-Use-12). Most of the vacant parcels are somewhat small, as evidenced by the median parcel size of 0.61 acre and the average size of fewer than 3 acres. Approximately 7,300 acres of unincorporated County land is surface water, according to County Assessor records. This is similar to the figure cited by DOF—6,140 acres. Certain parcels, because of limited information and inconclusive aerial photography, have land uses that cannot be determined at this time. Fewer than 300 acres of a total of more than 616,000 acres of unincorporated lands are undesignated as of the writing of this study.

Table Land-Use-12. Vacant Land, Water, and Unknown Land Uses

Statistic	Unknown	Vacant	Water	Total
Average Parcel Size	4.14	2.81	47.17	13.97
Median Parcel Size	1.47	0.61	11.00	0.95
Minimum Parcel Size	0.00	0.00	0.00	0.00
Maximum Parcel Size	81	237	451	451
Total Acres	244	1,158	7,358	8,760
Number of Parcels	59	412	156	627

SACOG Blueprint Model

In recent years, the Sacramento Area Council of Governments (SACOG) has modified its land use model to incorporated explicit policy-based choices for planning growth. In contrast to the past and present patterns of population, housing, and employment growth, SACOG developed scenarios that embrace, in different ways and degrees, smart growth principles. These include a variety of housing that emphasize mixed-use and transit-oriented development, infill and redevelopment, and conservation of natural resources by directing future residential growth toward cities and urban areas.

The Blueprint has five scenarios, with Scenario A being a continuation of existing land use policy in Yolo County. Core components of the four scenarios are as follows:

- **Scenario A:** Future development continues to be low density in an outward growth pattern, with jobs-housing imbalances in sub-areas.
- **Scenario B:** More housing choice, some growth through re-investment, mix of land uses, "edge" cities get their most growth.
- **Scenario C:** Slightly higher housing densities and re-investment than B, mix of land uses, "inner ring" areas get their most growth.
- **Scenario D:** Highest housing densities and re-investment levels, mix of land uses, "core" areas get their most growth.
- **Scenario C-P:** Called a "preferred scenario," this option reflects SACOG's interpretation of public preferences expressed during community workshops in Yolo County. This scenario was similar to scenario C, with slightly higher densities, and more focus on core areas.

Table Land-Use-13 compares the five growth scenarios in Yolo County over the 50-year planning period (2000–2050). Figure Land-Use-8 compares projected population growth for incorporated and unincorporated areas under each scenario. In all scenarios, SACOG assumes that the most growth occurs within existing city boundaries and/or through annexation. Scenarios A and B yield similar results by assuming high growth in the unincorporated areas of the County, and including a new community at the Interstate 5/Interstate 505 (I-5/I-

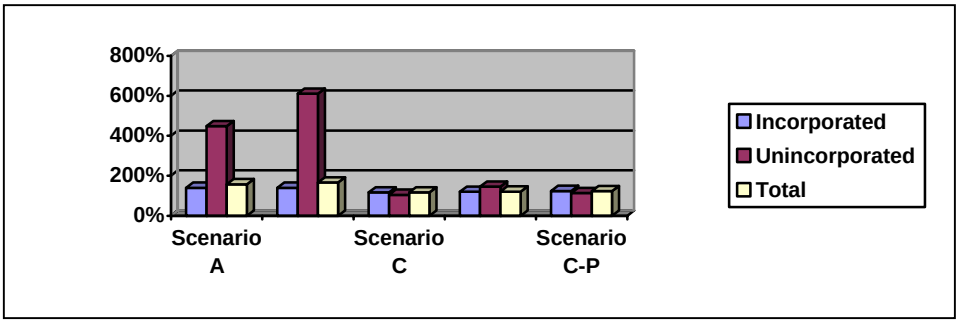
505) interchange. Scenarios D, C, and C-P (Preferred C) show the least amount of growth by assuming less development in the unincorporated areas.

Table Land-Use-13. SACOG Blueprint Projections

	Population			Housing Units		
	Baseline[a]	Growth	2050	Baseline[a]	Growth	2050
Scenario A	148,389	232,81	381,204	64,517	101,224	165,741
Scenario B	148,389	246,802	395,191	64,517	107,305	171,822
Scenario C	148,389	171,704	320,093	64,517	73,007	137,524
Scenario D	148,389	178,521	326,910	64,517	75,960	140,477
Scenario C-P	148,389	181,663	330,052	64,517	77,297	141,814

[a] Blueprint baseline "2000" is not the same as 2000 Census data.

Figure Land-Use-8. SACOG Blueprint Projections By County Area



Growth Projections (2000–2025)

Given that SACOG will be replacing its land-use based model with a policy-driven model, the remainder of this memorandum will focus on the Blueprint model and deriving population and housing projection scenarios for 2000–2025. The focus of the effort will be to analyze growth in the unincorporated areas.

As noted earlier, the Blueprint scenarios begin at a base year (2000) and end in 2050. The 2000 base numbers for population, housing, and employment were not adjusted for actual 2000 census counts, so the starting point for the Blueprint projections do not coincide with the 2000 Census.

No intermediate points are available for 2025 under the SACOG Blueprint projections. To obtain an intermediate forecast, the Blueprint scenarios were first adjusted to incorporate 2000 Census data, increasing the base-year numbers. The mid-point of the difference between actual 2000 Census counts and SACOG's 2050 projections were then used for 2025 projections. The Blueprint scenarios had

an original base year population of 148,389 in 2000; thus, the baseline scenario was updated to a population of 168,660 according to the 2000 Census.

Based on the growth rates assumed in the various SACOG Blueprint scenarios, adjusted for the 2000 Census counts, the population of Yolo County could increase from 168,660 in 2000 to more than 310,000 by 2025 if a new community is developed, or to nearly 267,000 if a new community is not developed. The unincorporated area population could increase from 21,457 in 2000 to between 32,000 and 65,000 in 2025, depending on whether a new community is developed.

Table Land-Use-14 contains population and housing projections through 2025 using SACOG's Blueprint scenarios as a guide.

Table Land-Use-14. Population and Housing Projections 2000–2025[a]

	Population		Housing	
	2000	2025	2000	2025
Scenario A				
Incorporated	147,203	245,432	54,825	94,027
Unincorporated	21,457	55,560	6,725	18,435
Total	**168,660**	**300,992**	**61,587**	**112,462**
Scenario B				
Incorporated	147,203	245,432	54,825	94,027
Unincorporated	21,457	65,083	6,725	22,258
Total	**168,660**	**310,515**	**61,587**	**116,285**
Scenario C				
Incorporated	147,203	228,264	54,825	86,679
Unincorporated	21,457	34,804	6,725	11,548
Total	**168,660**	**263,068**	**61,587**	**98,227**
Scenario D				
Incorporated	147,203	229,594	54,825	87,184
Unincorporated	21,457	32,445	6,725	10,765
Total	**168,660**	**262,039**	**61,587**	**97,949**
Scenario C-P				
Incorporated	147,203	232,721	54,825	88,368
Unincorporated	21,457	33,138	6,725	10,995
Total	**168,660**	**265,859**	**61,587**	**99,363**

[a] SACOG Blueprint growth rates have been applied to the 2000 Census counts of population and housing.

Sources: SACOG Blueprint Project (for scenarios and growth rates); Cotton/Bridges/Associates

Existing Economic Base and Employment

Introduction

This section analyzes the ***economic base*** of Yolo County. First, the report describes trends in the labor force. Then, it analyzes trends for major industry groups, identifying which industries enjoy comparative advantages in Yolo County compared to the region and the state. The analysis addresses questions such as "Which industries are concentrated in Yolo County more so than in the state?" and "Which industries in Yolo County are growing at rates in excess of growth rates for similar industries in the state?" After tracking county industrial trends and strengths, the report concludes by analyzing economic trends in unincorporated Yolo County.

The economic base of Yolo County has historically consisted of agriculture and agricultural-related manufacturing, transportation, and warehousing industries. The unincorporated county areas support 57% of farm production employment and 40% of farm services and food processing employment. However, employment in these industries has seen an accelerated decline in recent years. The County economy has been driven instead by population related economic sectors such as construction, retail, and services firms. Government employment, including education, has posted the largest employment gains over the past 5 years. The unincorporated County area includes two-thirds of government and education jobs in Yolo County. In addition, visitor-serving businesses have seen modest but steady growth. Given the presence of UCD, with its pre-eminent medical and veterinary schools, health and medical-related industries are also a part of the economic base of Yolo County.[15]

Sources of Information

Data for this report were derived from the US Census, SACOG Projections, the California Employment Development Department, and comparisons with employment projections calculated by a private vendor of economic data, Woods and Poole.

Key Terms

- **Economic Base:** When analyzing local and regional economies, economists and planners seek to identify what are referred to as economic base industries. These industries draw income into the local and regional economy by selling products or services outside of the region, much like the export industries of a national economy. Accrued earnings then circulate

[15] The report also includes health and medical industries in the economic base for the breadth of jobs and occupations within these industries, as well as for the ability of workers to move-up the occupational and wage-earning ladder. Thus, with proper training and certification, medical assistants can move-up from their ranks to become registered nurses, or perhaps enter into other higher-paying technical positions such as X-Ray technicians, etc.

throughout the local area in the form of wages and salaries, investments, purchase of fixed assets, goods and services, generating more jobs and wealth.

- **Emerging Industries:** Industries that currently have low concentration in the county but are growing rapidly.
- **Labor Force:** Persons that are either employed or are actively seeking work.
- **Local Support Industries:** In addition to the economic base industries, there are also local support (non-basic) industries, such as services and retail, the progress of which is a function of the economic base and demographic changes. In the same way that retail, services, and transportation support and depend on economic base industries, major industry divisions that comprise the base likewise depend on each other. Grapes harvested by farms within the agricultural division, for example, are processed and packaged by wineries within the manufacturing division.
- **Location Quotient (LQ):** A ratio that compares the percent that an industry represents of total employment in the county to its percent statewide. A location quotient of 1 means that an industry has the same concentration locally as it does statewide. If the LQ is more than 1, that industry is more prominent in the count than it is statewide. If the LQ is less than one, the reverse is true.
- **Shift Share:** Compares the rate of industry growth in the county to the rate of growth for the same industry statewide. If industries are growing more rapidly in the county than they are statewide, they are considered to have a completive advantage locally.

Labor Force Trends

As Table Land-Use-15 shows, there were 98,500 Yolo County residents who were in the labor force in 2003. During the course of the national economic boom between 1995 and 2000, the county's labor force increased by 8%, from 86,500 to 93,000 residents. By comparison, the labor force of the six-county SACOG region grew at a faster rate, by 12% over the same 5-year period. Yolo County's labor force actually accelerated its growth after 2000, increasing by another 6% between 2000 and 2003. The SACOG region has also increased at a slightly faster rate during the last 3 years, in contrast to the state, which slowed down considerably.

Table Land-Use-15. Labor Force Trends: Yolo County, Unincorporated Yolo County, and Comparison Areas

	1995	2000	2003	Change 1995–2000	Change 2000–2003	Percent Change 1995–2000	Percent Change 2000–2003	Annual Percent Change 1995–2003
Yolo County	86,500	93,000	98,500	6,500	5,500	8%	6%	1.6%
SACOG Region	849,600	955,600	1,032,300	106,000	76,700	12%	8%	2.5%
California	15,235,600	16,892,000	17,460,000	1,656,400	568,000	11%	3%	1.7%

Source: California Employment Development Department—Labor Management Information Division (LMID).

Employment, Unemployment, and Unemployment Rate Trends

Of the 98,500 county residents in the labor force in 2003, 93,300 were employed and 5,200 were unemployed (Table Land-Use-16). The number of unemployed residents decreased between 1995 and 2000—from 6,000 to 4,000. With the onset of the recession in late 2000, the number of unemployed residents increased between 2000 and 2003—from 4,000 to 5,200. The number of unemployed workers in the county increased by 30% during the 3-year period from 2000 to 2003. For the region and the state, the number of unemployed workers increased by 38% and 41%, respectively, over the same period.

Table Land-Use-16. Employment and Unemployment Trends: Yolo County, Unincorporated Yolo County, and Comparison Areas

	1995	2000	2003	Change 1995–2000	Change 2000–2003	Percent Change 1995–2000	Percent Change 2000–2003	Annual Percent Change 1995–2003
Yolo County								
Employed Workers	80,500	89,000	93,300	8,500	4,300	11%	2%	2%
Unemployed Workers	6,000	4,000	5,200	-2,000	1,200	-33%	30%	-2%
SACOG Region								
Employed Workers	786,700	911,700	971,500	125,000	59,800	8%	3%	3%
Unemployed Workers	62,900	43,900	60,800	-19,000	16,900	-30%	38%	-0.5%
California								
Employed Workers	14,040,100	16,056,500	16,282,700	2,016,401	226,200	14%	1%	2%
Unemployed Workers	1,195,500	835,500	1,177,300	-360,001	341,800	-30%	41%	-0.2%

Source: California Employment Development Department—LMID.

From the 1995 to 2003, the area's unemployment rate had declined significantly, going from 6.9% in 1995 to 5.3% in 2003. However, the unemployment rate declined significantly between 1995 and 2000, and increased between 2000 and 2003, going from 4.3% to 5.3%, respectively. The SACOG region's unemployment rate changed in a manner similar to Yolo County, starting at a high-point in 1995, dipping significantly between 1995 and 2000, and then increasing with the onset of the recession. As Table Land-Use-17 shows, Yolo County's unemployment rate tends to be lower than the rates of the region and the state as a whole.

Table Land-Use-17. Unemployment Rate Trends: Yolo County, Unincorporated Yolo County, and Comparison Areas

	1995	2000	2003	Percent Change 1995–2000	Percent Change 2000–2003
Yolo County	6.9%	4.3%	5.3%	-37%	16%
SACOG Region	7.4%	5.0%	5.9%	-33%	5%
California	7.8%	4.9%	6.7%	-37%	35%

Source: California Employment Development Department—LMID

Economic Base Analysis: Employment By Sector and Major Industry Groups

There were 95,500 wage and salary jobs in Yolo County in 2003 (Table Land-Use-18).[16] Between 1995 and 2003, the number of jobs in various industries in the County increased by 18%, from 80,800 to 95,500. Employment in the SACOG region increased by 26% over the same period, while employment in California increased by 16%. Of the 95,500 jobs, the bulk is in government, which employs 36% of all workers. This is also true in the region, with the presence of the State Capitol in Sacramento.

Given the number of farms, open space, and pasturelands, as well as the presence of UCD, a center of agricultural research and development, agriculture is an important sector in Yolo County. Along with food processing and health services, agriculture represents the economic base of Yolo County. While employing only 4% of the total employment, the proportion of agricultural workers to total number of workers is greater in the county relative to the SACOG region and state. In the SACOG region, agriculture represents 1% of all workers, whereas in the state this sector represents 2% of all workers.

Another important agriculture-related industry is food processing, which employs 2% of all workers in Yolo County. Food processing employs less than 1% of all workers in the six-county region, and for California as a whole, this industry employs slightly over 1% of all workers. Between 1995 and 2000, the number of food processing workers in the county decreased by 23%, from 2,200 to 1,700 workers. Since 2000, employment in food processing declined by 14% in the 3-year period stretching from 2000 to 2003. In the region, food processing had also declined since 2000, falling by 8%.

Table Land-Use-18 also tracks the progress of what economists and planners refer to as ***local support industries.*** These industries are predominantly in the retail, services, and the finance-insurance-real estate (F.I.R.E.) sectors, the progress of which, for the most part, is a function of population growth and, to some extent, export sectors such as agriculture and manufacturing. As population increases in a given area, demand for local support industries, such as realtors, teachers, healthcare, increases, as does demand for basic retail items such as groceries, gas for commuting, or clothing at local apparel shops. With the on-set of the recession in 2000, employment in several local support industries stagnated or altogether declined over the 3-year period between 2000 and 2003. As Table Land-Use-18 shows, county employment in local support

[16] The California Employment Development Department (EDD) releases data on employment on quarterly and annual bases, tracking employment trends by sector and major industry groups for all counties in the state. The EDD's employment by industry data reflects jobs by "place of work." Jobs located in the County or the Metropolitan Statistical Area (MSA) that pay wages and salaries are counted although workers may live outside the area. Jobs are counted regardless of the number of hours worked. Individuals who hold more than one job (i.e. multiple job holders) may be counted more than once. Employment by industry data does not include the self-employed, unpaid family workers, and private household employees. The EDD's wage and salary employment data is different from the EDD's labor force data. Whereas the former tracks employment in the county of individuals regardless of where they reside, the latter tracks residents in the county who are in the labor force regardless of their place of employment.

Table Land-Use-18. Employment By Sector: Yolo County, Comparison Region and California: 1995–2003
Employment Based on Wages and Salaries Only

	Yolo County						SACOG Region						California					
	1995	2000	2003	Percent Change 1995–2000	Percent Change 2000–2003	Percent Change 1995–2003	1995	2000	2003	Percent Change 1995–2000	Percent Change 2000–2003	Percent Change 1995–2003	1995	2000	2003	Percent Change 1995–2000	Percent Change 2000–2003	Percent Change 1995–2003
Agriculture	5,000	4,900	4,200	-2%	-14%	-16%	14,900	15,000	12,800	0.7%	-15%	-14%	373,500	408,500	375,000	9%	-8%	0%
Nat Res Mining Const.	2,700	4,800	5,100	78%	6%	89%	33,700	56,000	68,800	66%	23%	104%	524,900	757,500	810,800	44%	7%	54%
Manufacturing	6,200	6,700	6,100	8%	-9%	-2%	46,600	55,000	48,500	18%	-12%	4%	1,714,900	1,857,500	1,544,900	8%	-17%	-10%
Durable Goods	2,600	3,300	2,900	27%	-12%	12%	27,900	37,300	32,800	34%	-12%	18%	1,079,500	1,212,100	981,800	12%	-19%	-9%
Nondurable Goods	3,600	3,500	3,100	-3%	-11%	-14%	18,600	17,800	15,600	-4%	-12%	-16%	635,300	645,400	563,100	2%	-13%	-11%
Food Manufacturing	2,200	1,700	1,900	-23%	12%	-14%	8,200	7,681	7,100	-6%	-8%	-13%	186,000	190,200	191,700	2%	1%	3%
Trans., Whsng., Utilities	6,400	7,400	7,300	16%	-1%	14%	20,300	24,400	22,900	20%	-6%	13%	459,600	517,200	480,700	13%	-7%	5%
Information	1,100	1,100	1,100	0%	0%	0%	18,200	18,900	21,800	4%	15%	20%	415,900	575,400	471,400	38%	-18%	13%
Wholesale	4,200	4,900	4,800	17%	-2%	14%	22,300	26,000	27,100	17%	4%	22%	556,700	644,900	651,400	16%	1%	17%
Retail	7,400	8,600	7,200	16%	-16%	-3%	79,900	95,000	100,200	19%	5%	25%	1,381,900	1,559,400	1,589,900	13%	2%	15%
Finance and Insurance	1,800	1,800	1,800	0%	0%	0%	30,400	39,100	45,800	29%	17%	51%	504,100	533,000	612,400	6%	15%	21%
Real Estate	1,200	1,400	1,500	17%	7%	25%	11,700	14,400	15,400	23%	7%	32%	238,200	262,100	274,400	10%	5%	15%
Prof Business Services	7,900	9,200	8,100	16%	-12%	3%	77,000	108,200	99,200	41%	-8%	29%	1,667,800	2,246,000	2,108,100	35%	-6%	26%
Educational Health Serv	5,400	5,000	5,800	-7%	16%	7%	66,900	74,500	85,500	11%	15%	28%	1,238,900	1,398,000	1,536,300	13%	10%	24%
Leisure and Hospitality	4,600	5,600	6,300	22%	13%	37%	65,200	73,300	80,500	12%	10%	23%	1,181,500	1,332,600	1,397,600	13%	5%	18%
Food and Drinking	3,700	4,200	4,800	14%	14%	30%	48,000	54,000	58,600	13%	9%	22%	814,300	920,100	972,100	13%	6%	19%
Arts, Enter., and Rec.	900	1,400	1,500	56%	7%	67%	17,300	19,300	21,900	12%	13%	27%	367,200	412,500	425,500	12%	3%	16%
Other Services	1,600	1,700	1,900	6%	12%	19%	22,600	27,800	29,300	23%	5%	30%	430,600	486,700	505,800	13%	4%	17%
Government	25,300	29,300	34,300	16%	17%	36%	200,000	221,600	236,500	11%	7%	18%	2,107,000	2,318,100	2,426,500	10%	5%	15%
	80,800	92,400	95,500	14%	3%	18%	709,700	849,200	894,300	20%	5%	26%	12,795,500	14,896,900	14,785,200	16%	-1%	16%

Source: California Employment Development Department—LMID (note: employment data based on NAICS)

industries such as information and finance-and-insurance failed to grow between 2000 and 2003, whereas retail employment in the county declined by 16% over this period. In stark contrast, regional employment in information, retail, finance-insurance, real estate and educational-health service increased significantly, growing by 15%, 5%, 17%, 7%, and 15%, respectively. At the state level, information and professional-business service declined between 2000 and 2003, but for many other local support industries, employment increased between 2000 and 2003.

Given its wealth-creating potential and the number of quality of jobs within this sector, manufacturing is another important sector in any area's economy. Overall, the manufacturing sector employed 6% of all workers in the county in 2003, a rate less than the retail and services sectors. At the state level, manufacturing had a larger share of total jobs, at 12%, whereas for the SACOG region, manufacturing jobs comprised 6% of all jobs.

Of the 6,100 manufacturing jobs in 2003, 31% were in food processing. By comparison, food processing was 10% of manufacturing jobs in California in 2003, and 15% of all manufacturing jobs in the region. As important as food processing is, this industry experienced a significant decline between 1995 and 2003, declining by 14% over that period.

In addition to food processing, durable goods industries are another important set of manufacturers. Typically, durable goods producers require high skills, pay the highest wages, and provide the most in benefits. As importantly, they maintain a wide network of relations with various buyers and suppliers, the transactions of which generate wealth for the county and region. Thus, durable goods production is an indication of the maturity of the manufacturing sector. Employment in durable good manufacturing increased by 12% in Yolo County between 1995 and 2003. In the region, the durable goods sector increased by 18%, while in the state it declined 9%. It is worth noting that, since 2000, employment in durable goods manufacturing declined in Yolo County by 12%, off-setting the 27% increase that occurred between 1995 and 2000.

Given the visitor attractions and leisure activities in Yolo County, visitor-serving businesses make important contributions to the local economy. As late as 1999, Yolo County hosted almost 1 million visitors, the bulk of whom came to the county for leisure-related purposes.[17] Visitors to the county purchased $170 million worth of goods and services in 1999. The amount spent by visitors to the county had increased to 185 million by 2002. The Cache Creek Casino in the Capay Valley area accommodated almost 600,000 visitors in 2000 alone.[18]

As Table Land-Use-18 showed, the number of workers employed in leisure and hospitality industries increased by 37% between 1995 and 2003, which is surprising given the statewide and national impacts of the 9/11 tragedy and the recession on visitor serving industries. As the table shows, employment in leisure and hospitality industries by 22% over the 5-year period stretching from

[17] D.K. Shifflet and Associates, June 1999, "Domestic Travel Report, Year End 1998, California"

[18] ADE, Esparto Downtown Revitalization Report, 2001, Page 18

1995 to 2000, and continued to grow by 13% between 2000 and 2003. Employment in this industry grew by 12% and 13% for the SACOG region and the state as a whole between 1995 and 2000, and by 10% and 5% between 2000 and 2003. Within the leisure and hospitality industry, rapid growth occurred in arts-entertainment and recreation sub-industries in Yolo County. Employment in these industries grew by 67% between 1995 and 2003, far surpassing regional and state growth rates of 27% and 16% over the same 8-year period.

Industries with Comparative Economic Advantages in Yolo County

The previous section identified sectors and industries that comprise the economic base of the county, including rates of growth for base and local support industries. This section examines data in the context of developments in the county and the state, to determine whether growth industries are growing as fast as or in excess of similar industries in the region or California. It analyzes whether particular growing industries are also concentrated more so in Yolo County than elsewhere. In looking at relative growth rates and levels of concentration, the analysis begins to shed light on those industries in which the region maintains a comparative advantage, as well as gives insights into which industries are emerging and which are declining.

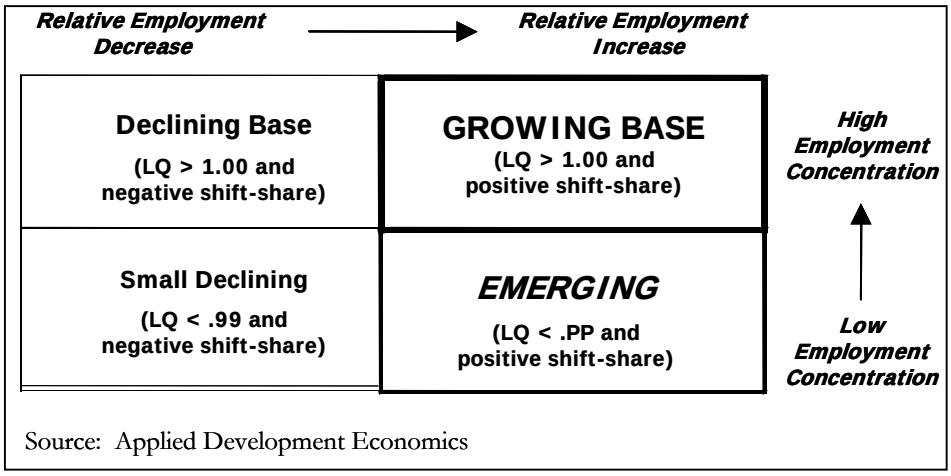
An important approach for determining employment concentration is called location quotient analysis. The location quotient for a specific industry is the ratio of the number of jobs in a specific industry in a specific place versus all jobs in the same place, versus the number of jobs in the same specific industry for a larger area (such as the State of California) versus all jobs in the larger area. A location quotient of 1 means that an industry is distributed within the economy of an area in the same way that it is distributed in the comparison area's economy. Location quotients are also used as indicators of export and import activity. Differences in productivity at the level of establishments, regional labor needs, regional consumption patterns, and quality of products and services are factors that also influence whether an industry exports products and services. As a general rule, if the location quotient is between 0.80 and 1.25, it cannot be said for certain that an area is a net exporter or importer.

Determining whether specific growth industries are growing as fast as or even more so than similar industries at higher geographic levels (such as the State of California) is another element to understanding an area's comparative advantage. An important approach for determining the relative growth in employment is called the shift-share analysis.[19]

[19] It is possible that specific product lines can report absolute positive growth between two points in time yet, at the same time, experience a negative shift-share. Textile mills (SIC 22) in a part of the Central Valley region—Kings County—increased by 36%, from 162 jobs in 1991 to 220 in 1999. At the same time, in the comparison area—the State of California—textile mills grew even faster, by 76%. Thus, Kings County's textile job growth lagged behind that for the region and, as a result, that county experienced a negative shift-share for SIC 22.

The four-quadrant analysis combines findings from the shift-share and location quotient analyses for specific industries and, in doing so, is an important tool in identifying g*rowing base*, *declining-transforming*, *emerging*, and *small declining* industries. Figure Land-Use-9 provides a schematic of the four-quadrant analysis.

Figure Land-Use-9. Four-Quadrant Analysis Schematic



Source: Applied Development Economics

The growing economic base includes those industries that have positive growth rates and whose respective local concentration is greater than 1.00. Industries falling into this category merit the attention of policy makers and planners because they are the source of regional wealth-creation and jobs. Moreover, growing economic base industries are those in which a county maintains a comparative economic advantage vis-à-vis other counties, regions, or California as a whole. To be sure, comparative economic advantage results from a number of local conditions, including availability of specialized marketing organization, easy access to credit, transport facilities, a trained labor force, and the existence of complementary industries, to identify a few factors.

The emerging industry sectors are those that are growing in employment, but whose local concentration is small compared to the share of the same industry sector in the state economy. Industries within this category are often referred to as "infant industries". Those merit special attention, given their potential to attract other complementary industries and businesses, create regional wealth, and expand the number of jobs.

The declining-transforming base includes industries that have a high local concentration but have negative growth rates. These industries are somewhat concentrated in an area but, overall, they are not growing at rates similar to like industries in other places. It is possible that the unfavorable trend is due to some industry-wide restructuring that eventually will strengthen the competitiveness of the affected firms and result in growth in the future. In any event, identifying the leading causes to negative growth rates is important.

The fourth category is made up from businesses that have a small share in the local economy (location quotient less than 1) and are declining in employment. This category is not the subject of an in-depth analysis because the types of businesses that fall in this category lack fundamentals for long-term viability and growth. Industry sectors in this category would normally be considered targets only as part of a strategy to increase the local creation of products or services now being imported to strengthen a local industry cluster.

In categorizing industries into their appropriate quadrants, the analysis tracks primarily those industries that are part of the economic base, as well as other industries that contributes to economic base. Thus, many local support industries, such as retail, financial services (accounting, banking, etc), real estate, and legal services, are not included in our findings. However, the report tracks a select number of local support industries, particularly those in transportation and warehousing, that are closely linked to the economic base. In addition, the four-quadrant analysis includes trends in health and medical-related industries in Yolo County

Growing Base

As discussed above, agriculture, food processing and health and medical related industries are critical to Yolo County. These industries comprise the economic base and, not surprisingly, they are fixtures in the growing base quadrant of the four-quadrant analysis. Growing base industries are listed in Table Land-Use-19. Between 1995 and 2000, farm labor services (SIC 0761), crop preparation services (SIC 0723), grapes (SIC 0172), and fruits and tree nuts (SIC 0179) were the leading agricultural industries in the growing base. Of the 7,766 jobs in industries in the growing base, 28% were in agriculture.

Given the presence of UCD medical and veterinary schools, it is not surprising to see health and medical-related industries as a prominent part of the local economy, as well as the growing base. In the late 1990s, residential care (SIC 8361), skilled nursing facilities (SIC 8051), diagnostic substances (SIC 2835), and hospital and medical service plans (SIC 6324) were the leading health and medical-related industries in the growing base. Of the 7,848 jobs in the growing base, 27% were in industries related to health and medicine.

Emerging Industries

In addition to the growing base, there are also emerging base industries. These industries are not concentrated in Yolo County at levels close to growing base industries, but they merit attention by virtue of their positive shift-share, meaning that, for one reason or another, between 1995 and 2000, these industries grew as fast as, if not faster than, similar industries elsewhere. Altogether, there were only four emerging base industries, consisting of 1,335 jobs (see Table Land-Use-20). Interestingly, no emerging base jobs were in traditional economic base industries of agriculture or food processing, although health and medical-related

Table Land-Use-19. Growing Base Industries: Yolo County 1995–2000

SIC	Description	Study Area Employment 2000	Change in Study Area Employment 1995 to 2000	Percentage Change in Study Area Employment 1995 to 2000	Shift-Share	LQ–2000
0761	Farm labor contractors	1,273	491	63%	0.485	2.225
8361	Residential care	832	311	60%	0.286	1.979
5084	Industrial machinery and equipment	714	422	145%	1.264	4.739
8051	Skilled nursing care facilities	669	107	19%	0.052	1.266
5148	Fresh fruits and vegetables	463	177	62%	0.519	4.287
2063	Beet sugar	449	165	58%	0.897	93.071
2835	Diagnostic substances	442	413	1424%	13.749	22.379
0723	Crop prep services, exc cotton ginning	401	269	204%	1.958	2.341
6324	Hospital and medical service plans	386	127	49%	0.023	2.789
0172	Grapes	341	209	158%	1.388	1.782
4731	Freight transportation arrangement	285	204	252%	2.393	1.917
8093	Specialty outpatient facilities, nec	202	114	130%	1.109	1.945
5142	Packaged frozen foods	173	90	108%	1.173	6.647
5145	Confectionery	173	29	20%	0.113	5.803
3441	Fabricated structural metal	165	68	70%	0.399	4.818
5147	Meats and meat products	147	76	107%	1.049	3.132
0179	Fruits and tree nuts, nec	109	20	22%	0.342	2.724
1381	Drilling oil and gas wells	93	51	121%	0.826	9.784
1389	Oil and gas field services, nec	88	4	5%	0.073	3.090
3443	Fabricated plate work (boiler shops)	74	36	95%	0.897	3.592
2836	Biological products except diagnostic	65	61	1525%	14.491	2.659
2035	Pickles, sauces, and salad dressings	44	12	38%	0.386	3.253
3829	Measuring & controlling devices, nec	44	39	780%	8.069	2.195
0752	Animal specialty, except veterinary	37	8	28%	0.059	1.266
2491	Wood preserving	37	19	106%	0.381	13.504
2875	Fertilizers, mixing only	30	14	88%	1.093	6.539
2879	Agricultural chemicals, nec	30	14	88%	0.950	7.716
Economic Base						
	Agriculture	2,161	28%			
	Food processing	493	6%			
Industries in support of Economic Base		2,015	26%			
Health-related industries		2,089	27%			
Others		1,050	13%			
Total		**7,766**				

Note: Except for a select number of industries, such as those in health services and those in support industries closely linked with economic base industries (such as freight transportation or packaged frozen foods wholesalers), local support industries are generally removed from the above table, as are industries that employed less than 25 workers in the year 2000.

industries in the emerging base quadrant employed 95% of all workers. Thus, unlike the situation in the growing base, agriculture or food processing are not significant elements to the region's emerging base. What this means for the economic future of Yolo County is not altogether clear for the moment, although the data could spur discussion on the need for further analysis.

Table Land-Use-20. Emerging Industries: Yolo County 1995–2000

SIC	Description	Study Area Employment 2000	Change in Study Area Employment 1995 to 2000	Percentage Change in Study Area Employment 1995 to 2000	Shift-Share	LQ–2000
8062	General medical and surgical hospitals	1,199	211	21%	0.105	0.788
3841	Surgical and medical instruments	65	33	103%	0.655	0.615
1794	Excavation work	41	20	95%	0.241	0.820
1623	Water, sewer, pipeline, and communications and power line construction	30	17	131%	0.815	0.257
Economic Base						
	Agriculture	0	0%			
	Food processing	0	0%			
Industries in support of Economic Base		71	5%			
Health-related industries		1,264	95%			
Others		0	0%			
Total		**1,335**				

Note: Except for a select number of industries, such as those in health services, local support industries are generally removed from the above table, as are industries that employed less than 25 workers in 2000.

Transforming Industries

In contrast to the emerging base quadrant, a different picture emerges in the declining-transforming base quadrant. Industries in this quadrant have a positive location quotient and a negative shift-share, meaning that they are concentrated in the county but are not growing at all or, are declining. It is possible that the unfavorable trend is due to some industry-wide restructuring that eventually will strengthen the competitiveness of the affected firms and result in growth in the future.

Between 1995 and 2000, the declining-transforming base quadrant consisted of a set of industries employing of 7,638 workers, as shown in Table Land-Use-21. This does not mean that 7,638 jobs were or are at immediate risk of elimination. What this means is that there are 7,638 jobs in industries that experienced relative decline in the late 1990s. Of these jobs, 28% were in agriculture, 12% in food processing, and 47% in industries that were closely related to agriculture, such as

trucking (SIC 4213), local trucking with storage (SIC 4212), general warehousing and storage (SIC 4225), special warehousing (SIC 4226), and water well drilling (SIC 1728), to name a few related industries. Overall, 87% of all jobs in the declining base were economic base industries of agriculture, food processing or industries in support of economic base industries.

Small and Declining Industries

Table Land-Use-22 identifies small and declining industries. These industries in Yolo County are small in the sense that they employed workers in proportions less than similar industries in the state as a whole. Moreover, these industries declined in the late 1990s, and their rates of decline exceeded the rate of decline of similar industries at the state level. As Table Land-Use-22 shows, of the 2,230 workers in the small and declining quadrant, 52% were in industries related to health and medicine, with 21% in agriculture.

Employment Trends In Unincorporated Yolo County

For purposes of regional planning, including regional housing needs determination and transportation planning, SACOG tracks employment and demographic trends at the local, county and regional levels. In addition, SACOG makes employment and population projections into the future. Local, regional and state officials acknowledge the SACOG estimates and projections as the official numbers for the purposes of regional planning and funding.

According to SACOG, industries located in unincorporated Yolo County employed 28,570 workers in 2002. In the county as a whole, SACOG estimates that industries located in the county employed 100,415 workers. Thus, 28% of all jobs are in unincorporated Yolo County. Unlike the California Employment Development Department, which produces annual employment figures based on data culled from the state agency to which businesses are required to submit data on number of workers receiving wages and salaries, SACOG employment figures are derived from a private vendor, InfoUSA.

Employment in Unincorporated Yolo County

Table Land-Use-23 identifies employment in unincorporated Yolo County by sector, major industry groups, and key industries (food processing and health services), comparing employment in these discrete categories against employment in similar categories for the county as a whole. Table Land-Use-23 shows that, after government, agriculture is one of the largest sectors in terms of employment in unincorporated Yolo County. In the county as a whole, many sectors dwarf agriculture in terms of employment, such as retail and services. Whereas, in unincorporated Yolo County, agriculture employs more workers than retail and services on a sector-by-sector comparison. Six percent of all jobs in

Table Land-Use-21. Transforming Industries: Yolo County 1995–2000

SIC	Description	Study Area Employment 2000	Change in Study Area Employment 1995–2000	Percentage Change in Study Area Employment 1995–2000	Shift-Share	LQ–2000
4213	Trucking, except local	1,528	17	1%	-0.158	5.900
0161	Vegetables and melons	901	-230	-20%	-0.186	5.594
0191	General farms, primarily crop	810	-331	-29%	-0.196	6.241
4212	Local trucking without storage	776	-87	-10%	-0.216	2.610
2451	Mobile homes	759	83	12%	-0.295	34.235
2044	Rice milling	498	51	11%	-0.083	84.569
4225	General warehousing and storage	282	13	5%	-0.554	2.755
0173	Tree nuts	224	-169	-43%	-0.448	5.413
2033	Canned fruits and vegetables	216	-433	-67%	-0.594	2.520
2086	Bottled and canned soft drinks	203	38	23%	-0.055	3.809
3272	Concrete products, nec	196	-21	-10%	-0.440	4.292
4226	Special warehousing and storage, nec	157	6	4%	-0.188	11.461
1781	Water well drilling	141	-35	-20%	-0.307	12.785
5083	Farm and garden machinery	126	-24	-16%	-0.204	3.193
93433	Heating equipment, except electric	123	0	0%	-0.002	13.041
0762	Farm management services	80	-172	-68%	-0.729	1.522
3713	Truck and bus bodies	78	18	30%	-0.182	5.049
3523	Farm machinery and equipment	70	-59	-46%	-0.550	5.644
2673	Bags: plastics, laminated, and coated	56	-59	-51%	-0.695	3.140
0112	Rice	53	-34	-39%	-0.471	6.781
1796	Installing building equipment, nec	51	5	11%	-0.356	1.807
3369	Nonferrous foundries, nec	42	-10	-19%	-0.056	19.459
3312	Blast furnaces and steel mills	42	-10	-19%	0.216	3.518
0722	Crop harvesting, primarily by machine	40	-2	-5%	0.316	1.394
3491	Industrial valves	34	-114	-77%	-0.613	3.734
3496	Misc. fabricated wire products	33	-4	-11%	-0.246	1.871
0119	Cash grains, nec	31	-24	-44%	-0.243	9.938
4221	Farm product warehousing storage	31	-18	-37%	-0.515	13.706
3799	Transportation equipment, nec	29	-76	-72%	-0.578	5.394
2541	Wood partitions and fixtures	28	1	4%	-0.103	1.012
Economic Base						
	Agriculture	2,139	28%			
	Food processing	917	12%			
Industries in support of Economic Base		3,593	47%			
Health-related industries		0	0%			
Others		947	13%			
Total		**7,638**				

Note: Except for a select number of industries, warehousing and transportation, local support industries are generally removed from the above table, as are industries that employed less than 25 workers in the year 2000.

Table Land-Use-22. Declining Industries: Yolo County 1995–2000

SIC	Description	Study Area Employment 2000	Change in Study Area Employment 1995–2000	Percentage Change in Study Area Employment 1995–2000	Shift-Share	LQ–2000
8011	Offices and clinics of doctors of medicine	623	-537	-46%	-0.592	0.564
8021	Offices and clinics of dentists	418	27	7%	-0.082	0.881
0780	Landscape and horticultural services unallocated	320	95	42%	-0.061	0.810
2711	Newspapers—publishing or printing	162	-52	-24%	-0.208	0.746
0740	Veterinary services	92	-1	-1%	-0.311	0.816
3599	Industrial machinery, nec	72	14	24%	-0.108	0.363
8049	Offices of health practitioners, nec	71	-12	-14%	-0.080	0.612
2653	Corrugated and solid fiber boxes	62	-48	-44%	-0.436	0.920
4214	Local trucking with storage	50	-77	-61%	-0.601	0.855
3444	Sheet metalwork	42	-26	-38%	-0.856	0.574
0175	Deciduous tree fruits	40	-58	-59%	-0.407	0.672
8041	Offices and clinics of chiropractors	38	0	0%	-0.073	0.675
3089	Plastics products, nec	37	-61	-62%	-0.588	0.213
2099	Food preparations, nec	36	-62	-63%	-1.094	0.510
5169	Chemicals & allied products, nec	36	4	13%	-0.025	0.638
2431	Millwork	30	-18	-38%	-0.715	0.507
3577	Computer peripheral equipment, nec	30	-12	-29%	-0.514	0.388
3273	Ready-mixed concrete	26	-3	-10%	-0.470	0.527
0721	Crop planting, cultivating, and protecting	25	1	4%	-0.168	0.803
2421	Sawmills and planing mills, general	20	-44	-69%	-0.617175	0.38764307
Economic Base						
	Agriculture	477	21%			
	Food processing	36	2%			
Industries in support of Economic Base		204	9%			
Health-related industries		1,150	52%			
Others		363	16%			
Total		**2,230**				

Note: Except for a select number of industries, warehousing and transportation, local support industries are generally removed from the above table, as are industries that employed fewer than 25 workers in the year 2000.

unincorporated county are in agriculture. For the county as a whole, agriculture represents 4% of all jobs.

Table Land-Use-23. Employment By Sector, 2002: Unincorporated Areas Versus Yolo County—Employment Estimates Based on InfoUSA

	Unincorp. Areas	County Total	Unincorp. Areas	County Total	Unincorp. Areas as Percent of County
Agriculture	1,812	4,004	6%	4%	45%
Farm Production	*719*	*1,257*	*3%*	*1%*	*57%*
Farm Services	*1,093*	*2,747*	*4%*	*3%*	*40%*
Mining	200	400	1%	0.4%	50%
Construction	432	4,938	2%	5%	9%
Manufacturing	708	5,893	2%	6%	12%
Durable Goods	*95*	*2,260*	*0.3%*	*2%*	*4%*
Nondurable Goods	*613*	*3,632*	*2%*	*4%*	*17%*
Food & Kindred Products	*348*	*870*	*1%*	*1%*	*40%*
Transportation	270	3,826	1%	4%	7%
Communications and Utilities	23	1,021	0.1%	1%	2%
Wholesale	1,615	9,227	6%	9%	18%
Retail	1,619	16,890	6%	17%	10%
F. I. R. E.	125	3,501	0.4%	3%	4%
Services	1,771	20,292	6%	20%	9%
Health Services	*273*	*5,487*	*1%*	*5%*	*5%*
Government	19,996	30,423	70%	30%	66%
	28,570	100,415	100%	100%	28%

Source: SACOG.

As Table Land-Use-23 shows, 57% of all farm production jobs in agriculture are in unincorporated Yolo County, with 43% in the four incorporated cities. In addition, 40% of farm services jobs are in unincorporated parts of the county and 60% are in incorporated cities. This is true in part because farm-related businesses have many of their facilities and administrative offices in the cities, but also because cities in the county retain non-urbanized areas along their respective edges, where, for generations, farms, agricultural-related industries and activities have thrived. As an example, the City of Davis passed Measure J in the late 1990s, which, among other things, requires a referendum for re-designating agricultural or open space uses, effectively preserving these lands in incorporated Davis for these kinds of uses. Table Land-Use-23 also shows that 10%, 4% and 9% of all jobs in retail, F.I.R.E. and services are in unincorporated Yolo County, meaning that the bulk of jobs in these sectors are in incorporated cities. This finding makes intuitive sense given that local support industries by their nature need to locate in dense population settings.

Employment Projections

For purposes of regional planning and funding, SACOG devised official employment estimates for the region, which begin in 1999 and project out to 2025. This projection is referred to as "SACOG99" in Table Land-Use-24. As part of its "Sacramento Region Blueprint" planning process, SACOG officials are in the midst of updating their employment projections and, with data from InfoUSA, have recently determined that in 2002 there were approximately 100,415 workers employed in various industries in the Yolo County. Because of the difference between "SACOG99" employment estimates for 2002 and the actual 2002 employment numbers recently calculated by SACOG, ADE revised "SACOG99" to take into account the new information. These revisions are referred to as "SACOG99 (ADE revised)" in Table Land-Use-24. In addition, this table also includes employment projections calculated by a private vendor of economic data, Woods and Poole.[20]

As Table Land-Use-24 shows, Woods and Poole's employment projections begin by placing the number of Yolo County jobs in 2002 at 112,655. "SACOG99 (ADE revised)" starts at 100,415 jobs. The difference between the two estimates is attributable to the fact that Woods and Poole employment figures are based on data from the U.S. Bureau of Economic Analysis (US BEA), whereas "SACOG99 (ADE revised)" is based on InfoUSA, which tracks actual businesses in Yolo and other counties throughout the country. Despite the different methodologies, the employment projections of the two begin to converge between 2010 and 2015, which implies a consensus among professionals as to the employment picture up until 2015. Beyond then, employment projections begin to vary, in large part because of differing growth rate expectations. Compared to Woods and Poole, "SACOG99 (ADE revised)" projections have a faster annual rate of growth built into the projections. As Table Land-Use-24 shows, "SACOG99 (ADE revised)" has a 2.3% annual growth rate between 2005 and 2025, whereas Woods and Poole's annual growth rate for the same period is 1.5%. In addition to "SACOG99 (ADE revised)" and Woods and Poole, Table Land-Use-24 includes "mid-range estimates." The number of jobs in the future may lie somewhere around the "mid-range estimates," which straddle the extremes of "SACOG99 (ADE revised) and Woods and Poole. Figure Land-Use-10 traces the path of the three different employment projections over time.

[20] Woods and Poole's economic projection model is based on a comprehensive historical database that integrates economic activities betweens regions. Their projections for each county in the United States are performed simultaneously so that changes in one county will affect growth or decline in other counties. Their projections take into account the how the San Francisco Bay Area economy affects Yolo County. In addition, Woods and Poole obtain their data from the United States Bureau of Economic Analysis (US BEA), meaning that their data tracks the number of workers earning wages and salaries by sector, self-employed workers, proprietors, and miscellaneous workers. Proprietors include not only those people who devote the majority of their time to their proprietorship, but also people who devote any time at all to a proprietorship. Thus, a person with a full-time job and a small business on the side is counted twice. Woods and Poole is generally considered as a complete measure of full- and part-time jobs by place of work.

Table Land-Use-24. Employment Projections: Yolo County, 2002–2025

	2002	2005	2010	2015	2020	2022	2025	2002–2022	2005–2025	Annual Change 2002–2022	Annual Change 2005–2025
Yolo County (Total)											
SACOG 1999	99,642	109,855	127,233	140,628	157,979	163,850	172,064	64,208	62,209	2.5%	2.3%
Actual Employment (2004 SACOG)	100,415										
SACOG 1999 (ADE revised)	100,415	110,707	128,219	141,718	159,204	165,120	173,398	64,705	62,691	2.5%	2.3%
Mid-range estimate	106,535	114,783	128,730	140,574	154,257	159,070	166,079	58,656	51,296	2.3%	1.9%
Woods and Poole	112,655	118,860	129,240	139,430	149,310	153,021	158,760	52,606	39,900	2.1%	1.5%

Sources: SACOG, Woods and Poole, and ADE.

Figure Land-Use-10. Comparison of Employment Estimates for Yolo County, Including Mid-Range Estimate: 2002–2025

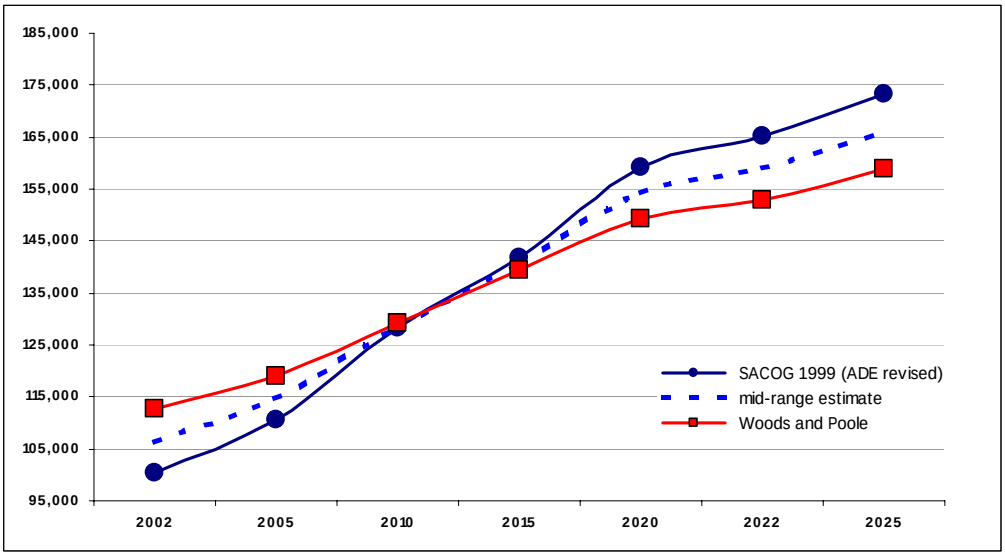


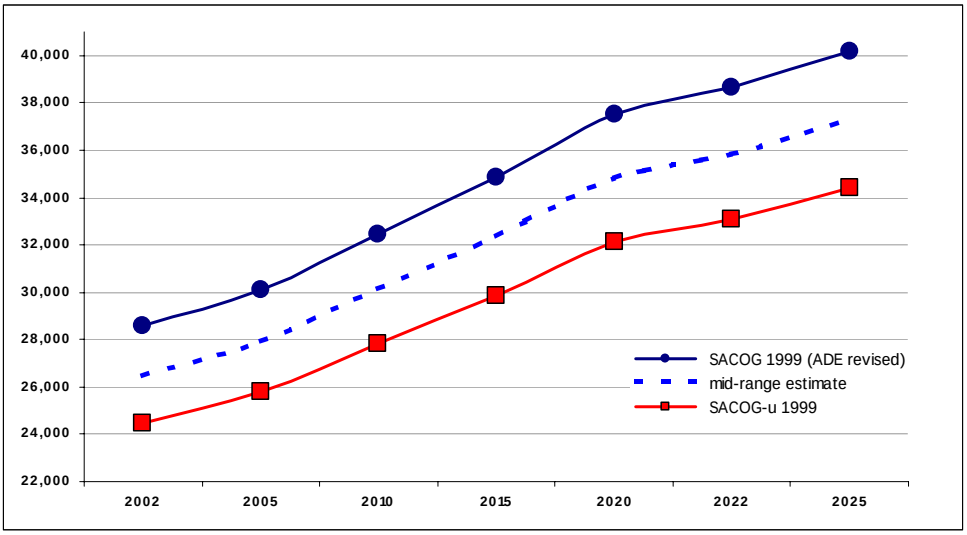
Table Land-Use-25 provides employment projections for unincorporated Yolo County. SACOG's official projections for unincorporated Yolo County ("SACOG-u 99") indicate that there were 24,471 jobs in unincorporated areas. Based on its recent review of InfoUSA, SACOG now believes that there were 28,570 workers in 2002. SACOG is adjusting its official estimates, and expects to complete this task later this year. ADE revised "SACOG-u 99" to take into account the new information. These revisions are referred to as "SACOG-u 99 (ADE revised)" in Table Land-Use-25. As Table Land-Use-25 shows, total employment in unincorporated Yolo County is projected to increase by 10,092 workers between 2005 and 2025, from 30,107 to 40,199 (see "SACOG-u 99 [ADE revised])." In other words, employment will grow by 1.5% annually during that 20-year time frame.

This growth rate is slower than the annual growth predicted by SACOG for the county as a whole. Between 2005 and 2025, SACOG projects employment to annually grow at a 2.3% pace. It is worth noting that the 1.5% annual growth for unincorporated Yolo County is similar to the growth rate Woods and Poole forecast for the county as a whole.[21]

Figure Land-Use-11 traces the path of the three different employment projections over time for unincorporated Yolo County. In addition to "SACOG-u 99"and "SACOG-u 99 (ADE revised)," Figure 3 includes "mid-range estimates." The number of jobs in the future may lie somewhere around the "mid-range estimates," which straddle the extremes of "SACOG-u 99"and "SACOG-u 99 (ADE revised)."

[21] Woods and Poole only provides economic forecasts at the national, state, regional, county and major city levels, and not for unincorporated areas such as unincorporated Yolo County.

Figure Land-Use-11. Comparison of Employment Estimates for Unincorporated Yolo County, including Mid-Range Estimate: 2002–2025



In terms of employment projections for the major economic sectors, SACOG projects very little growth in the unincorporated area except for education, which we assume is related to the UCD (Table Land-Use-26).[22]

Conclusion

This report demonstrates that while the historical economic base of Yolo County has been composed of industries in agriculture and agricultural-related industries in manufacturing, transportation, and warehousing, economic activity in the county is rapidly shifting toward population-driven and visitor-serving growth, including health and medical-related industries. The unincorporated area may continue to serve as the agricultural base for the county, but most of the employment growth is attributable to expansions at the University and perhaps other educational institutions.

The large, well-established industries in the county are either growing or declining, but there is little growth activity among smaller emerging industry groups, except for medical care. In addition, the report shows increasing employment in visitor-serving industries such as hotel-and-lodging and recreation-and-amusement. Employment in visitor-serving industries increased at rates far surpassing growth rates recorded by like industries in the SACOG region and the state as a whole.

[22] The data in Table 26 are unadjusted from SACOG's original 1999 projections. The large reduction in medical employment between 1999 and 2000 appears to correspond to an even larger increase for the City of Davis, reflecting either a data anomaly or an actual incorporation of property with an existing medical facility.

Table Land-Use-25. Employment Projections: Unincorporated Areas of Yolo County, 2002–2025

	2002	2005	2010	2015	2020	2022	2025	2002–2022	2005–2025	Annual Change 2002–2022	Annual Change 2005–2025
SACOG-u 1999	24,471	25,787	27,811	29,860	32,145	33,093	34,431	8,622	8,644	1.5%	1.5%
Mid-range estimate-u	26,521	27,947	30,141	32,361	34,838	35,865	37,315	9,344	9,368	1.5%	1.5%
Actual Employment (2004 SACOG)	28,570										
SACOG-u 99 (ADE revised)	28,570	30,107	32,470	34,862	37,530	38,637	40,199	10,067	10,092	1.5%	1.5%

Sources: SACOG and ADE.

Table Land-Use-26. SACOG Projections

Total Employment	1999	2000	2005	2010	2015	2020	2022	2025	200–2005	2005–2010	2010–2015	2005–2025
Cities	62,422	69,736	84,068	99,422	110,768	125,834	130,757	137,633	4%	3%	2.2%	2%
Unincorporated	21,408	23,631	25,787	27,811	29,860	32,145	33,093	34,431	2%	1.5%	1%	1%
Total County	**83,830**	**93,367**	**109,855**	**127,233**	**140,628**	**157,979**	**163,850**	**172,064**	**3%**	**3%**	**2.0%**	**2%**
Retail Employment												
Cities	10,596	11,301	14,005	17,179	18,883	21,634	22,288	23,308	4%	4%	1.9%	3%
Unincorporated	378	363	365	369	372	403	413	413	0%	0%	0.2%	1%
Total County	**10,974**	**11,664**	**14,370**	**17,548**	**19,255**	**22,037**	**22,701**	**23,721**	**4%**	**4%**	**1.9%**	**3%**
Office												
Cities	15,393	17,073	23,722	29,443	34,490	41,259	43,601	46,750	7%	4%	3.2%	3%
Unincorporated	169	213	215	217	224	229	229	229	0%	0%	0.6%	0%
Total County	**15,562**	**17,286**	**23,937**	**29,660**	**34,714**	**41,488**	**43,830**	**46,979**	**7%**	**4%**	**3.2%**	3%
Medical												
Cities	2,884	3,715	4,385	5,052	5,578	6,420	6,593	6,835	3%	3%	2.0%	2%
Unincorporated	434	15	18	20	24	25	27	27	4%	2%	3.7%	2%
Total County	**3,318**	**3,730**	**4,403**	**5,072**	**5,602**	**6,445**	**6,620**	**6,862**	**3%**	**3%**	**2.0%**	**2%**
Educational												
Cities	3,270	3,550	4,155	4,580	4,893	5,350	5,519	5,711	3%	2%	1.3%	2%
Unincorporated	15,903	18,297	20,309	22,080	23,967	26,160	27,089	28,398	2%	2%	1.7%	2%
Total County	**19,173**	**21,847**	**24,464**	**26,660**	**28,860**	**31,510**	**32,608**	**34,109**	**2%**	**2%**	**1.6%**	**2%**
Manufacturing												
Cities	6,888	8,655	10,415	13,345	15,579	17,745	18,515	19,605	4%	5%	3.1%	3%
Unincorporated	975	975	975	975	975	975	975	975	0%	0%	0.0%	0%
Total County	**7,863**	**9,630**	**11,390**	**14,320**	**16,554**	**18,720**	**19,490**	**20,580**	**3%**	**5%**	**2.9%**	**3%**
Other												
Cities	23,391	25,442	27,386	29,823	31,345	33,426	34,241	35,424	1%	2%	1.0%	1%
Unincorporated	3,549	3,768	3,905	4,150	4,298	4,353	4,360	4,389	1%	1%	0.7%	1%
Total County	**26,940**	**29,210**	**31,291**	**33,973**	**35,643**	**37,779**	**38,601**	**39,813**	**1%**	**2%**	**1.0%**	**1%**

The report also shows that Yolo County has a slightly lower unemployment rate than the region and state, a further indication of the shift away from agriculture, which is often characterized by high, chronic seasonal unemployment.

While over the long-term economists forecast different employment scenarios for Yolo County, there is consensus as to near-term projections. "SACOG99 (ADE revised)" projects employment at 128,219 in 2010, slightly lower than Woods and Poole's forecast of 129,240. In 2015, "SACOG99 (ADE revised)" projects employment at 141,718, slightly higher than Woods and Poole's forecast of 139,430. Thus, according to "SACOG99 (ADE revised)" employment projections, the number of jobs will increase by 27,805 between 2002 and 2010, and by 41,303 jobs between 2002 and 2015 for the county as a whole.

Employment in unincorporated Yolo County will grow at a slower rate. Between 2002 and 2010, the number of jobs in these areas will grow by 3,900 jobs, and by 6,292 jobs 2002 and 2015 according to "SACOG-u 99 (ADE revised)" projection. Between 2005 and 2025, the number of jobs will increase by 9,368 jobs, nearly all of which is associated with the major educational institutions.

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