



## 4 – Agricultural Resources

### 4.1 Introduction

Agriculture is the dominant land use in Merced County, accounting for more than 90 percent of all land. It is also the top economic sector of the county, considering both the work of farms and ranches and the activities of processing and other businesses that give value to the commodities produced by the land and provide support services to the agricultural enterprises.

This chapter focuses primarily on the land use and farmland protection aspects of Merced County agriculture. A viable local agriculture economy depends on a variety of other resources besides land (including markets, support services, operator characteristics, water, labor, and capital) some of which are covered here. Initial summaries of general plan policies and farmland protection programs are followed by sections that examine several of the other dimensions of local agriculture. This chapter contains the following topical sections:

- Introduction (Section 4.1)
- General Plan Objectives and Policies (Section 4.2)
- Conserving Farmland: Regulatory and Compensatory Tools (Section 4.3)
- Urban Expansion Effects on Agricultural Land (Section 4.4)
- Farm and Commodity Trends (Section 4.5)
- Agriculture and the Local Economy (Section 4.6)
- Operator Characteristics (Section 4.7)
- Agricultural Land Market (Section 4.8)
- Agricultural Water (Section 4.9)
- Major Findings (Section 4.10)

Table 4-1 presents a snapshot of Merced County's agriculture, highlighting some of its key characteristics and impacts. The size and economic significance of the county's agriculture sector stands out. Merced is ranked fifth among all counties in the state and sixth in the nation in the annual market value of farm products. A wide range of commodities are grown in the county, with major production of milk, poultry, livestock, and other animal commodities, row crops, nuts and fruit tree crops, and vegetables.

Rich soils, plentiful irrigation water, favorable climate, a large labor force, and steady access to local, national, and global markets make this possible. Tying together all the agriculture-related factors are the entrepreneurial skills of several thousand agricultural operators.

**TABLE 4-1  
Snapshot of Merced County Agriculture**

Category	Description
Land	1.16 to 1.17 million agricultural acres <sup>1</sup> ; 92 percent of county’s total area. (2010, 2012)
Soils	Gently sloping alluvial plain in the middle of the world’s most diverse agricultural region—the San Joaquin Valley. Prime soils (271,100 acres) account for 23.4 percent of total agricultural land in Merced County. Other cropland (325,430 acres) accounts for 28 percent, and grazing land (562,471 acres) accounts for 48.6 percent.
Market Value of Agricultural Products	\$2.73 billion. (2010)
All Farms	2,607 farms average 399 acres (2007)
Commodities	90 different crop and animal products; at least 53 have annual market values of \$1 million or more. Major commodity groups in annual market value are: 1) Animal Products (including Milk) \$1.54 billion; 2) Fruits and Nuts \$465.7 million; 3) Field Crops \$325 million; 4) Vegetable Crops \$317.8 million. (2010)
Irrigated Farmland	514,162 acres on 2,127 farms (2007)
Agricultural Animals	320,884 cattle and calves; 77,744,725 chickens; 2,306,709 turkeys. (2010)
The Agricultural Landscape	The largest sectors of the agricultural landscape are: 45.9 percent in grazing land (567,391 acres); 43.5 percent in row crops (537,716 acres); 11.7 percent in orchards (144,863 acres); and 3.1 percent in dairies (277 dairy farms) (2007, 2011)
Local Economic Impacts of Agriculture	At least \$8.1 billion in total economic activity, assuming an average 3x multiplier for the \$2.7 billion in market value of products. (2010)
	About one-third of all employed persons in the county are directly or indirectly connected to agriculture. Including persons employed in food manufacturing (the top employment sector in the county), support services, crop production, and animal production. (2005)

<sup>1</sup> Differing amounts of acreage depending upon the source: the Merced County Agricultural Commissioner (MCAC) or the California Department of Conservation. Depending upon the analysis, comparisons are like to like (e.g., consistent MCAC data when discussing crops as a percentage of all agricultural land).

Sources: Merced County Agricultural Commissioner, *Annual Report of Agriculture, 2011*; U.S. Census of Agriculture, 2009; California Department of Conservation, *Division of Land Resource Protection, Merced County: 2008-2010 Land Use Conversion 2012*; Maxwell Norton, UC Cooperative Extension, “Merced County Agriculture,” 2005.

## 4.2 General Plan Objectives and Policies

### Introduction

Merced County’s Agricultural industry is integral to its long term economic success. Because of the importance and uniqueness of agricultural in the county, the County has identified specific goals, objectives, and policies to help both foster and preserve agriculture. This section describes those goals, objectives, and policies outlined in the existing 1990 General Plan relevant to agricultural production and preservation.

### Key Terms

**Important Farmlands.** A collective term for farmlands designated as prime, unique, or as farmlands of statewide importance under the Department of Conservation’s Farmland Mapping and Monitoring Program.

**Farmland Security Zone.** An Area created within an agricultural preserve by a board of supervisors upon request by a landowner or group of landowners.

**Soil Quality.** The capacity of a specific kind of soil to function within natural or managed ecosystem boundaries to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health habitation.

**Residential-Agricultural Edges.** Areas where commercial agricultural operations are adjacent to or nearby residential areas, often leading to land use conflicts.

## Regulatory Setting

This section summarizes the 1990 Merced County General Plan, which is the overarching land use policy document for the county.

## Existing Conditions

Protecting and enhancing Merced County’s agricultural resources and prosperity are the top priorities of the County’s existing 1990 General Plan. As Table 4-2 notes, objectives and policies dealing with agriculture are found in four of the plan’s seven substantive elements: Land Use, Housing, Open Space/Conservation, and Agriculture. Supplementing these points, the General Plan also contains considerable data and analysis, background that goes beyond the specific objectives and policies to discuss in some detail particular issues.

**TABLE 4-2**  
**1990 Merced County General Plan Objectives and Policies Relating to Agriculture**

Objectives	Policies
<b>I. LAND USE ELEMENT</b>	
1.A. Compact urban boundaries which reduce conflicts with agricultural land.	1. Limit development to urban centers. 2. Consider agricultural impacts of expanded urban boundaries.
7.A. Minimize conversion of productive ag and other open space lands.	1. Allow conversion only with “clear and immediate need”; consider vacant land inventory when expanding communities. 2. Direct urban services to less valuable farmland. 3. Avoid premature land division.
8.A. Rural areas to accommodate ag, grazing, habitat, and other open space needs.	2. Agricultural land use designation to be used for both farm production and other open space values.
<b>III. HOUSING ELEMENT</b>	
1.B. Minimize agricultural land conversion.	1. Allow conversion only with “clear and immediate need”; consider vacant land inventory when expanding communities. 2. Direct housing to less valuable farmland
<b>VI. OPEN SPACE/CONSERVATION ELEMENT</b>	
2.A. Protect soil resources from erosion, contamination, other negative effects.	1. Minimize removal of vegetation which stabilizes slopes, reduces runoff and erosion, etc.
2.B. Protect surface and groundwater from contamination, evaporation, inefficient use.	9. Avoid intensive agriculture processing with heavy wastewater discharge in areas having high groundwater and drainage problems. 10. Ag processing with high water use should not be located in areas with groundwater overdraft unless water recycling and conservation

**TABLE 4-2  
1990 Merced County General Plan Objectives and Policies Relating to Agriculture**

Objectives	Policies
	techniques are used.
3.C. Use open space lands for public protection.	13. Agriculture should be considered a compatible land use in public and private recreation areas which must be protected and buffered.
<b>VII. AGRICULTURE ELEMENT</b>	
1.A. Promote ag-businesses that provide competitive edge to local farmers.	1. Consider financial mechanisms to gain new processors in the county. 2. Seek programs and measures to encourage new agricultural industries.
1.B. Review State and Federal legislation that impacts local agriculture.	3. Communicate with State and Federal legislatures.
1.C. Consider programs to reduce tax burden on farmland.	4. Review development impact fees on agriculture projects. 5. Support use of conservation easements for agricultural conservation.
2.A. Protect productive ag-lands from conversion to other uses.	1. Allow conversion only with “clear and immediate need” based on population projections and land availability. 2. Direct development to less valuable farmland. 3. Encourage more efficient development in urban areas.
2.B. Discourage parcelization of large holdings.	4. Investigate increasing minimum parcel sizes for agriculturally zoned land.
2.C. Merge antiquated subdivisions into larger agriculture holdings by 2000.	5. Merge antiquated subdivisions which would result in residential-agriculture conflicts and cause environmental impacts. 6. Encourage owners of antiquated subdivisions to use voluntary merger process.
2.D. Reduce residential-agriculture conflicts through urban understanding of agriculture.	7. Measures to protect farmers from nuisance claims. 8. Educational programs on importance of protecting farmland. 9. Encourage soil productivity programs.
3.A. Provide clear boundaries between urban and ag areas.	1. Land use transitions and buffers, reducing interference and protecting ag-land from conversion.
3.B. Locate agriculture service and convenience centers.	2. Provide Agricultural Service Centers (ASCs). 3. Encourage new ag service operations to locate in ASCs.
3.C. Permit support operations in agriculture zoned areas.	4. Permit on-farm product handling and selling operations.
3.D. Properly locate non-urban uses that conflict with agriculture.	5. Weigh economic benefits of surface mining with agriculture preservation when considering excavation proposals on ag land.
3.E. Improve transport of agriculture products within the county.	6. Investigate additional all weather north-south road and improvement of State Routes 165, 140, 59.
4.A. Support measures to protect and improve water quality.	1. Adequate surface water to deficient areas. 2. Encourage farmers to conserve with irrigation methods. 3. Work with other agencies to reduce water contamination.
4. B. Protect agriculture and related activities from flooding.	4. Protect rural development from flooding. 5. Encourage improved flood protection.

Source: Merced County Year 2000 General Plan. Adopted December 4, 1990.

The Agriculture Element is more wide-ranging than the others. It is not a State-mandated element, unlike other parts (Land Use, Housing, Conservation, etc.) of the General Plan. Rather, it is a discretionary element, first added in 1984, and reflects the significance the County assigns to its agricultural resources. This chapter describes a number of factors that affect the viability of local farming and ranching, including support services, processing facilities, water supply and quality, land values, conversion trends, and edge conflicts. The chapter's purpose is to present "...policies that will improve the viability of agricultural operations and promote the conservation of agricultural land." (VII-1)

Much of the information in the 1990 General Plan is dated, reflecting the conditions of 15 or more years ago. Since that time, for example, the County has joined the Williamson Act program for conserving farmland and better information for tracking conversions and other changes in farmland has become available. Yet the existing General Plan provides a valuable baseline for examining the current realities and policy contexts for Merced County agriculture. Many of the issues and problems discussed in the 1990 document still ring true. Notably these include the impacts of rural residential development on commercial agriculture, the ongoing parcelization of agricultural land, disposal of agricultural waste, and improvements in the local road system to efficiently transport agricultural products. Many of the existing General Plan objectives and policies are relevant to present-day circumstances.

In outlining desired outcomes, the General Plan follows a three-level hierarchy of principles: (1) *Goals*, (2) *Objectives*, and (3) *Policies*. We ignore in this summary the first and highest level, since the goal statements are quite general and sometimes ambiguous, and concentrate on the more specific objectives and policies. Table 4-2 identifies 21 different objectives and, within them, 37 different policies pertinent to agriculture. They reflect a mix of land use, resource protection, and economic themes.

## **Farmland**

Most attention is paid to the imperative to protect farmland in the face of urbanization. Language calling for the conversion of farmland only with "clear and immediate need" is repeated as policies in the Land Use, Housing, and Agriculture chapters.

The General Plan approaches the farmland protection imperative as more than a reaction to urban development. It also has a strongly proactive character in targeting how and where residential and other forms of urban growth should proceed in Merced County. This is implicit in the "urban-centered" concept that has been central to the county's formal land use priorities for more than 25 years. The basic principle is to direct development to "established urban centers where urban services are available and impacts on agricultural and other natural and open space resources can be minimized." (p. I-3)

Individual objectives and policies deal with the agricultural impacts of expanded urban boundaries, avoiding premature land divisions, keeping urban services and housing away from the best agricultural land, and encouraging more efficient development within urban areas.

The urban threat to farmland and agriculture is only in part a result of the intensive urbanization typified by city expansion and large residential subdivisions, minor subdivision activity, office buildings, and shopping. The more serious impact, the General Plan suggests, comes from "land parceled into small rural holdings which are too small for efficient farming" (p. I-19), but provide large lot home sites. With 3 to 20 acres devoted to individual residences, they "may represent a larger actual loss" of farmland than more intensive development.

Cited also in the General Plan are the negative impacts on the county's agricultural operations from adjacent and nearby residential development, the clash of incompatible land uses at the so-called residential-agricultural "edge." Different objectives and policies call for compact urban boundaries to minimize such conflicts, protecting farmers from nuisance claims, and educating urban populations about the realities of agriculture.

General Plan language suggests that large-scale urban development, if compact and buffered, is less a threat to commercial farming than individual rural residences dispersed throughout the agricultural landscape. Besides being a less efficient form of residential development, scattered home sites increase the exposure of both the agricultural and residential sides to the negative effects of the proximity to other land uses. "Even one home on a small rural lot may create conflicts with adjacent agricultural uses." (p. I-18). The background analysis also addresses the use of buffers to minimize conflicts by separating intensive agricultural operations from urban concentrations, but notes that some low density rural residential development (in RRC areas) do not meaningfully serve this purpose because they are not adjacent to high density urban development.

In keeping with the focus on the problem of parcelization, the Agriculture chapter provides a parcel size analysis, which really is a critique of 20-acre zoning (A-1 zone) that allows the spread of ranchettes. The analysis questions the viability of agricultural operations on 20-acre or smaller parcels, noting that efficiencies of scale are critical to the economic success of Merced County farms.

"Parcel sizes are a major factor in the efficiency and profitability of farms, as significant as water availability and soil quality. The combination of parcel size and soil quality determines, to a major degree, a farm's potential productivity." (VII-22)

## **Natural Resources**

Commercial agricultural operations impact Merced County's natural resources both positively and negatively, according to the General Plan. The positive aspects primarily concern taking advantage of the county's immense agricultural acreage to advance natural resource benefits. One objective calls for using agricultural land for other resource and open space purposes, including habitat protection. Another considers agricultural land compatible with public and private recreation.

On the other hand, growing crops and animals is not a benign process for the natural environment; it is an industrial-type activity that generates soil erosion and runoff, creates water quality problems, and reduces natural vegetation. Agricultural wastes are especially a problem for animal production and Merced County's extensive food processing and packing facilities. Several General Plan objectives and policies address these problems.

A separate resource issue is the supply and quality of water for local agriculture, a critical matter for crop and animal production in the semi-arid San Joaquin Valley. One General Plan objective deals with water quality, conservation, and supply while another focuses on flood threats to agriculture and other activities in rural areas. The background discussion about these issues is more extensive, providing some detail about groundwater overdraft, the local delivery system for agriculture water, irrigation problems, and drainage patterns.

## **Economic Relationships**

The Agriculture Element also identifies the factors that add to the economic base of Merced County agriculture. Following are the key objectives and policies in this area:

- Promote new agricultural businesses including food processors;
- Reduce the tax burden on agriculture;
- Locate agricultural service and rural convenience centers in appropriate locations;
- Permit on-farm support services in agriculturally-zoned areas; and
- Improve the local road system for transporting agricultural products.

Some background discussion is devoted to the land use implications of locating agricultural support services and other uses in different Specific Urban Development Plans (SUDPs).

What should be avoided, the analysis suggests, is the transformation of smaller SUDPs without public sewer and water facilities into larger communities with such facilities, because of the consequent development inefficiencies and negative impacts on agricultural operations. The analysis calls for a policy differentiation between smaller and larger SUDPs that serve different purposes. Specifically, it recommends the designation of certain localities as Agricultural Services Centers, with limited public services and housing. Also recommended are designated Planned Agricultural Industrial Developments (PAID) for industrial and support operations that have negative impacts, such as animal sales yards and meat packing.

## **Further Steps**

While much General Plan language is general and flexible, the document also calls for specific follow-up actions on agricultural matters. Among the policies listed in the Agriculture Chapter, several involve one-time implementations recommended for certain county agencies. They are separate from the more general criteria to be applied to the ongoing review of development and other proposals submitted to the County. Table 4-3 identifies one-time recommendations and follow-up actions.

<b>TABLE 4-3                      Merced County General Plan (1990) Agriculture Element                      Recommendations for Further Actions</b>		
<b>Policy Recommendation</b>	<b>Plan Location</b>	<b>Action Taken</b>
Consider programs to reduce tax burden on farmland and aid conservation of farmland.	Objective 1.C.	County enrollment in the Williamson Act, 2000.
Review development impact fees on ag projects to ensure appropriate nexus.	Policy 1.C.- 4	Additional fees created.
Planning Department to recommend zoning and General Plan revisions to promote more efficient development through incentives.	Policy 2.A.- 3.	None
Technical Advisory Committee for Agricultural Land Conservation to study options for increasing parcel sizes in agricultural zones.	Policy 2.B.-4.	Ongoing discussion
Amend and implement Merger Ordinance to reduce antiquated subdivisions which negatively impact agriculture.	Policy 2.C.-5.	Antiquated Subdivision Environmental Review Ordinance adopted, adding CEQA process.
Amend Zoning Ordinance to create a classification for Agricultural Service Centers.	Policy 3.B.-3.	None
Public Works Department to investigate ways to finance new north-south road or improve existing roads.	Policy 3.E.-6.	None

Source: Merced County General Plan, phone interviews with county staff.

### 4.3 Conserving Farmland: Regulatory and Compensatory Tools

#### Introduction

Protecting farmland from urbanization is a central goal of the current General Plan. While the document contains a number of basic principles directed to this end, they are not self-executing instruments. Rather, they are translated into action by more specific regulations and other tools, created through ordinances and applied by the Board of Supervisors, the Planning Commission, the Planning Department, and other county agencies on a regular basis. This section describes the primary tools in this area—agricultural zoning, Williamson Act contracts, and the Right-to-Farm Ordinance, as well as several farmland conservation programs managed by non-county agencies that acquire and hold conservation easements.

#### Key Terms

**Conservation or Agricultural Easement.** A legally-recorded restriction on a privately-owned parcel that prohibits its development for more intense or urban uses.

**Williamson Act Contract – Active.** A contract between a landowner and a city or county to restrict land to agricultural or open space uses in return for reduced property tax assessments. The minimum term for a Williamson Act contract is 10 years. Since the term automatically renews on each anniversary date of the contract, the actual term can be indefinite.

**Williamson Act Contract – Notice of Non-Renewal.** A contract that may be terminated at the option of the landowner or local government by initiating the process of term non-renewal. Under this process, the remaining contract term (nine years in the case of an original term of 10 years) is allowed to lapse, with the contract null and void at the end of the term. Property tax rates gradually increase during the nonrenewable period, until they reach normal (i.e., non-restricted) levels upon termination of the contract.

## Regulatory Setting

### Williamson Act

Formally known as the California Land Conservation Act, this program restricts the farmland conversion to urban uses. The program combines landowner compensation through reduced property taxes with restrictions on conversion to developed non-agricultural and non-open space uses. Enrollment in the program is voluntary for both counties and participating landowners. In return for lower property tax bills, landowners accept the restrictions by contracting with the county for 10-year rolling terms, automatically renewed every year unless deliberately terminated. Enrolled land is assessed for property tax purposes at its use (or agricultural) value rather than the standard full-market value applied to other property. Contracts are terminated through one of two principle procedures:

**Non-Renewal.** Initiated by either the landowner or county and resulting in a nine-year phase-out of the contract; or

**Cancellation.** A more demanding process that allows immediate termination, requires the Board of Supervisors to make certain findings and imposes State fees on landowners that represent a portion of the past property tax benefits.

Additional features of the program include: (1) the requirement that contracted parcels be located in designated “agricultural preserves” and (2) annual State payments (“subventions”) to participating local governments as partial reimbursement for the loss of local property tax revenue.

### Right-to-Farm Ordinance

Along with most California counties and a number of cities, Merced County adopted a right-to-farm ordinance. The ordinance addresses the problem of urban growth encroaching on adjacent agricultural operations by seeking to reduce the opposition of residential neighbors to the nuisances created by commercial farming. The ordinance is an educational and disclosure measure, not a regulatory requirement. It informs purchasers of property about the local importance of agriculture and the possible negative impacts of locating residences near normal farm operations.

### Agricultural Conservation Easements

Like Williamson Act contracts, agricultural easements are voluntary and combine elements of landowner compensation and regulation, but to a far more substantial extent on both counts. Conservation easements typically eliminate, in perpetuity, the development rights from affected parcels; this is the most enduring and definitive form of avoiding urbanization and keeping land in farming. Landowners voluntarily sell their future development rights for cash, tax benefits, or a mix of both, keeping all other rights of ownership. Typically, the economic benefit of an easement is the difference between its value in agricultural use and its development potential market value. Landowners negotiate terms and sell their easements to government agencies or (more commonly in California) nonprofit land trusts, which are responsible for monitoring parcel

use to ensure compliance with the easement terms. Legally recorded in property deeds, easements run with the land and are not affected by ownership changes.

Agricultural easements are a relatively new tool for protecting farmland from urbanization and have been in use in the United States for only three decades (25 years in California). Agricultural easements are simply a different version of the broader conservation easement technique that has been employed for more than a century, mostly to protect lands with important natural resource, open space, and historic values. Millions of acres of agricultural land, mostly used for animal grazing or other low intensity farming have been put under easements throughout the nation for these other resource preservation purposes. “Agricultural” easements have a different primary target – keeping the land in agricultural production rather than protecting natural resources – although both purposes sometimes can be accommodated by the same easements depending on the commodities grown and farm practices used. The term “stacking” refers to layering multiple conservation easements on the same parcel.

## Existing Conditions

### Agricultural Zoning

Zoning is the county’s principal regulatory mechanism for protecting farmland, primarily through the designation of minimum parcel sizes and allowable uses in particular zones. Table 4-4 details the three agriculture zoning districts. The General and Exclusive Agriculture zones are for commercial agricultural operations that vary by intensity, soil quality, and location in relation to urban areas, accompanied by different parcel size requirements. Quite a different purpose is suggested by the Agricultural-Residential zone, as it accommodates the demand for a rural lifestyle on large residential lots that includes limited farming activity, or what the zoning code terms “hobby” farming. This zone is not included in the following analysis.

<b>TABLE 4-4 Agricultural Zoning in Merced County</b>				
<b>Zone</b>	<b>Purpose</b>	<b>Minimum Parcel Size</b>	<b>Acres Covered</b>	<b>% of County’s Unincorporated Area</b>
A-1. General Agriculture	For areas with more intensive farming operations dependent on higher quality soils and water, either in proximity to urban areas or in more rural areas.	20 acres	548,311 <i>includes A-1-40 zone</i>	44.2% <i>includes A-1-40 zone</i>
A-1-40. General Agriculture	Allow a variety of farming operations dependent on medium- to higher-quality soils and water, with larger parcel sizes away from urban areas.	40 acres	<i>See A-1</i>	<i>see A-1</i>
A-2. Exclusive Agriculture	Accommodate agriculture requiring larger size parcels, especially ranching with open space functions less dependent on soil quality and water. Suitable for foothill and wetlands locations.	160 acres	662,875	53.4%

Source: Merced County Code, Chapter 18.

Combined, the three commercial agriculture zones contain 97 percent of all land in the county's unincorporated area. Most expansive of all zones, containing more than 53 percent of all unincorporated acres, the A-2 category takes in the western and eastern foothills and some of the valley territory in the county.

### **Williamson Act**

Merced County came late to the Williamson Act, California's preferential property tax program, adopting it in 2000, more than 30 years after it was enacted in 1965. Merced joined 51 other California counties and several cities already in the program. The decision by the Board of Supervisors to participate in the State program came after years of debate within county government and agricultural circles. The benefits of protecting farmland from urban conversion and reducing property taxes for agricultural landowners were weighed against the loss of revenue for county government and special districts. The Agriculture Element in the 1990 General Plan describes the Williamson Act as an agriculture support option for the county.

Since the program has been available in Merced County for less than the 10-year contract minimum, nonrenewals have not been possible. However, the first cancellation was approved by the Board of Supervisors in July, 2006, to allow a new town development southwest of Los Banos. The cancellation was opposed by the Department of Conservation, the State agency that oversees the Williamson Act.

As of 2009, Merced County had 467,679 acres enrolled in the Williamson Act, 45 percent of all agricultural land, including approximately 1,100 landowners and 3,649 parcels, of which, approximately 6,200 acres are in non-renewal. About 55 percent of enrolled acres are cropland (labeled as "prime"), while the rest is grazing ("nonprime") land. In 2009, Merced County had the second largest net enrollment increase in Williamson Act land through the addition of 12,029 acres of land. Williamson Act land is located throughout the county's agricultural regions, generally some distance from the urban centers along SR 99. Large blocks of contracted acres are found on prime soils in the central, south central, and north central parts of the county, and on grazing land in the eastern and western extremities.

A portion of the property tax loss experienced by counties as a result of contracted land is reimbursed by the State as Williamson Act subventions. In 2005, Merced County received \$1.4 million for its general fund from this source. The subvention payments are allocated to participating local governments according to a formula that pays \$5 per acre for prime land and \$1 for nonprime. Merced County continued to receive \$1.4 million annually until subvention funding was under the threat of elimination under the State budget in 2008 when there was a 10 percent reduction in subvention payments statewide (i.e. approximately \$140,000 reduction in Merced County). Since 2010, most subvention funding for the Williamson Act has been removed. However, in 2010 the State eliminated financial support for the Williamson Act program. As a result, two bills were passed to provide a short-term solution to fund the program without using State dollars. AB 2530, signed in September 2010, subsequently replaced by SB 863, signed in October 2010, provides an opportunity for Merced County to continue to offset a portion of the loss of Williamson Act Subvention funds by reducing the term of the Williamson Act contracts from ten years to nine years as of January 2011. The reduction in the contract term reduces the landowner's property tax savings and allows the resulting increase in revenues to be transferred to the County's General Fund to partially offset the lost revenue to the County. The SB 863 modification to the Williamson Act Program will end in 2015.

The State provides a framework of rules and procedures, but the counties and cities directly administer the Williamson Act program and have some flexibility to impose more stringent requirements. In Merced

County, it is the Department of Planning that works with landowners in processing their applications and other contract matters and that monitors the program's implementation. The County's "Rules of Procedure" cover eligibility criteria, contract terms, contract terminations, and monitoring. Generally, the County's rules follow the State's standards with additional detail. One exception is that the County wants enrolled parcels to be "large enough to sustain their agricultural use", defined as a minimum of 20 acres for prime agricultural land and 80 acres for nonprime, as compared to the State's minimum of 10 acres. State law requires that contracted parcels be located in designated "agricultural preserves" at least 100 acres in size to encourage the concentration of enrolled land. Merced County designates one large preserve coincident with the principal agricultural zones, A-1 (General Agricultural) and A-2 (Exclusive Agricultural).

Merced County participates in the standard Williamson Act, but not in the newer version, the Farmland Security Act (FSA) which was established in 1998. The FSA provides landowners with 20-year renewable contracts in return for larger property tax reductions than the standard program.

### **Right-to-Farm Ordinance**

Merced County's Right-to-Farm Ordinance is administered by the Planning Department and has been in place since 1986. It requires disclosure in the residential development process, when subdivisions or parcel splits are approved and building permits are issued. In some cases, the agricultural notice is recorded as part of the subdivision parcel maps. The disclosure is passed on to future property buyers through the title process. There is also disclosure when building permits are granted; permittees are asked to sign an acknowledgement of the right-to-farm notice.

Merced's ordinance does not contain some provisions adopted by other counties, including county government review of nuisance complaints and notices disseminated directly by counties to purchasers through property tax bills and/or during real estate transactions.

### **Conservation Easements**

As compared to the temporary restrictions imposed by zoning and Williamson Act contracts, easements permanently protect farms and other open space land from conversion to urban use. Landowners voluntarily sell or donate the development rights of particular parcels in perpetuity, while retaining all other ownership rights, in return for cash and/or tax benefits. Easements have legal status; they are formally recorded on property deeds as permanent restrictions. Government agencies or non-profit organizations are centrally involved in the process. They negotiate terms with willing landowners, provide funding (either from their own budgets or other public and non-profit funds), and are the legal holders of the easements with ongoing management responsibilities.

The Agriculture Element of the General Plan includes (Policy 5, Objective 1.C) which expresses County support for "appropriate efforts by private conservation organizations to utilize conservation easements as a tool for agricultural conservation", and refers to the work of the then-new Merced County Agriculture and Open Space Trust.

Since that policy was written in 1990, several thousand acres of agricultural and other open space land have been put under easement in Merced County. The countywide total is not available, since no one source tracks the accomplishments of different conservation programs and some agencies are not able to provide precise information on their holdings. An incomplete list of current (2011) agriculture-related easements in the county includes the holdings of the following programs outside county government:

- Most focused on commercial agriculture are the nine farm and ranch easements, totaling 10,053 acres, held by the Central Valley Farmland Land Trust (Martin 2011). The CVFLT covers a four-county area (Sacramento, San Joaquin, Stanislaus, and Merced) and was formed in 2004 through a merger of four land trusts in each of the counties, including the Merced County Agriculture and Open Space Trust. Most of the new organization's 11,668 easement acres (approximately 86 percent) are in Merced County, reflecting the earlier work of the predecessor land trust, including two local easements near the community of Planada and the City Livingston that were recently acquired by the new agency. Although most of the acres in the county are encompassed by one large ranch in the western hills, other easements held by the Trust cover fruit and nut orchards, row crops, and a dairy. Several easements form the beginnings of a growth buffer around the unincorporated community of Delhi in north Merced County.
- More than 133,260 easement acres are located in the Grasslands Wildlife Management Area, a wetlands preserve managed by the U.S. Fish and Wildlife Service, including an additional 46,400 acres that were approved in 2005. Some of the parcels are devoted to grazing and the production of "wildlife-friendly" grains (Llyod 2011).
- Several thousand acres of mostly grazing land have been put under easement in recent years as environmental mitigation for the development of the new University of California Merced campus. They protect vernal pools and other wetlands in eastern Merced County and are lightly grazed by cattle.

*Please See Next Page*

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## 4.4 Urban Expansion Effects on Agricultural Land

### Introduction

With population growth and urbanization occurring at a steady pace in Merced County, the land use impacts on local agriculture are ongoing. Most obvious is the continuing conversion of agricultural land to residential and other urban uses, an inevitable consequence of cities expanding onto nearby farm land. Less apparent, but in some ways a more serious threat to commercial agriculture, are the land use conflicts that occur when new urban development is located adjacent to farms and ranches—the so-called urban-agriculture “edge” issue. This section examines both patterns in Merced County, relying on hard data to document conversion trends, but less precise information for the edge phenomenon.

### Key Terms

Please See Table 4-5.

### Existing Conditions

#### Urban Conversion

Because agricultural land represents more than 90 percent of the county’s land base, it provides the primary location for new urban development. To keep track of urban conversion trends and other land use changes since the mid-1980s, the California Department of Conservation developed the Farmland Mapping and Monitoring Program (FMMP) to generate reports every two years on the land use changes affecting important agricultural lands. Prior to 2008, the FMMP identified eight classifications of land uses; five different categories are used for agricultural land and three others are used for urban, other land uses, and water. In 2008, additional classifications were added to inventories for counties such as Merced to account for rural residential and confined animal agricultural land uses. Four of the categories of agricultural lands - Prime, Statewide Importance, Unique, and Local Importance - are collectively labeled by the FMMP as “important farmlands.” For purposes of this EIR, due to its importance to the local economy, the post-2008 FMMP category of “Confined Animal Agriculture” is also categorized as important farmland.

Table 4-5 sets forth the agricultural land use categories as used in the 2010 FMMP for Merced County, and each category’s respective acreage in the county. Figure 4-2 shows the locations of these farmland types.

**TABLE 4-5  
Agricultural and Other Land Use Categories in the Farmland Mapping and Monitoring Program**

<b>Land Use Category</b>	<b>Definition</b>	<b>Acres in Merced County, 2010</b>
Prime Farmland	Lands with the "...best combination of physical and chemical features able to sustain long-term agricultural production...has soil quality, growing season, and moisture supply needed to produce sustained high yields." The land must have been in irrigated production some time during the previous four years.	271,100
Farmland of Statewide Importance	Similar to prime, "but with minor shortcomings, such as greater slopes or less ability to store soil moisture." The land must have been in irrigated production some time during the previous four years.	151,340
Unique Farmland	"...lesser quality soils used for the production of the state's leading agricultural crops." Usually irrigated, but may include non-irrigated vineyards or orchards. The land must have cropped at some time during the previous four years.	109,030
Farmland of Local Importance	Lands that have the physical characteristics that would qualify for Prime or Statewide Importance except for the lack of irrigation water. Also, lands that produce crops not listed under unique, but are "...of importance to the local economy".	65,057
Grazing Land	"Land on which the existing vegetation is suited to the grazing of livestock." Minimum mapping unit is 40 acres.	562,461
Confined Animal Agriculture <sup>1</sup>	Lands occupied by poultry facilities, feedlots, dairy facilities, and fish farms. Prior to 2008, these facilities were classified as Farmland of Local Importance in Merced County, or were classified based on the characteristics of the underlying soils.	14,339
Nonagricultural and Natural Vegetation <sup>1</sup>	Lands including heavily wooded, rocky, or barren areas, riparian and wetland areas, grassland areas that do not qualify for Grazing Land due to their size or land management restrictions, small water bodies, and recreational water ski lakes. Constructed wetlands are also included in this category.	12,737
Semi-Agricultural and Rural Commercial <sup>1</sup> Land	Lands that include farmsteads, agricultural storage and packing sheds, unpaved parking areas, composting facilities, equine facilities, firewood lots, and campgrounds	3,666
Vacant or Disturbed Lands <sup>1</sup>	Lands including open field areas that do not qualify for any other agricultural category, mineral and oil extraction areas, off-road vehicle areas, electrical substations, channelized canals, and rural freeway interchanges.	15,234
Rural Residential and Commercial Land <sup>1</sup>	Residential areas of one to five dwellings per 10 acres.	5,418
Urban and Built-up Land	"...occupied by structures with a building density of at least one dwelling to 1.5 acres, or approximately 6 structures to a 10-acre parcel." Used for residential, industrial, commercial, and other developed purposes.	38,376
Water Area	Areas of lakes, rivers and other waters.	16,859
<b>Total</b>	<b>All FMMP mapped lands (inc. urban and rural non-agricultural lands)</b>	<b>1,265,617</b>

<sup>1</sup> Prior to 2008 in Merced County, rural residences, brush, timber, wetlands, confined animal facilities, etc., were categorized by the FMMP as "Other Land."

Source: California Department of Conservation, Farmland Mapping and Monitoring Program, 2012.

Urban conversion of agricultural land in Merced County has been a steady but slow process, according to FMMP data. Table 4-6 shows the trend for 1992-2010. During this 18-year period, total agricultural land decreased from 1.18 million acres to 1.16 million acres (excluding confined animal agriculture) – a decrease of 21,400 acres or 1.7 percent. At the same time, urban and built-up land increased from 28,326 to 38,376 acres – an increase of 10,050 acres or 35.5 percent. Annually, the loss averaged approximately 1,074 acres per year. Only a part of the loss is due to the growth of urban areas. Although not explicitly reflected in Table 4-6, the increase of lands in the Other Land category may represent land being fallowed or lost to other types of rural developed uses. Additionally, much of the loss of grazing lands over the period may be due to the development of irrigation facilities and the cultivation of lands formerly classified as Grazing Land. Such conversion may act to mask the loss of important farmlands to non-agricultural uses, since the loss may be offset in part as grazing lands are converted to more productive agricultural activities. Until recently (2008), reported FMMP numbers did not accurately document the impact of single family, low-density rural residential or commercial development on farmland. Therefore, the gross numbers reported by the FMMP may underestimate the extent of the agricultural land converted to other non-agricultural uses.

**TABLE 4-6**  
**Agricultural and Other Land Use Changes, 1992-2010**

Land Use Category	Acres, 1992	Acres, 2010	1992-2010 Change	Percent Change	Average Annual Change in Acres
Prime Farmland	288,920	271,100	-17,820	-6.2%	-990
Other Important Farmland <sup>1</sup>	309,670	325,427	15,757	5.0%	875
Grazing Land	581,798	562,461	-19,337	-3.3%	-1,074
<b>Total Agricultural Land</b>	<b>1,180,388</b>	<b>1,158,988</b>	<b>-21,400</b>	<b>-1.7%</b>	<b>-1,189</b>
Urban and Built-Up Land	28,326	38,376	10,050	35.5%	558
Other Land	35,759	51,394	15,635	43.7%	869
Water Area	16,946	16,859	-8	-0.5%	-5

<sup>1</sup> Includes other cropland—farmland of statewide importance, unique farmland, and farmland of local importance.

<sup>2</sup> Because the FMMP has revised the land use categories reported in its analyses, the information reported in this Table does not match the categories set forth in Table 6-2. For example, the Other Land category reported above was disaggregated in 2008 to report the additional quasi-rural land uses described in Table 6-2. To permit comparison with data from years prior to 2008 or with data in other counties still reporting the old categories, the FMMP reports information using the pre-2008 categories. A potentially large implication for Merced County is that confined animal facilities were categorized as Other Land prior to 2008.

*Source: California Department of Conservation, Farmland Mapping and Monitoring Program, 2012*

Considering Merced County's overall agricultural landscape of more than 1.04 million acres, a decrease of 21,400 farm and ranch acres over the 16-year period—a 1.7 percent decrease—seems minimal. Annually, the loss averaged approximately 1,189 acres per year. And as noted above, only a part of the loss is due to the

growth of urban areas. Yet these gross numbers may underestimate the extent of the agricultural land loss for the following reasons:

- The best agricultural soils, land in the prime category, have been disproportionately affected by the ongoing trend. In 1992-2010, 6.2 percent of prime farmland in the county was taken out of production, as compared to a decline of 1.7 percent for all agricultural land and roughly a 3.3 percentage decline for grazing land. Farmland of statewide importance, the second most significant in soil quality, also declined disproportionately—a loss of 6.7 percent during the period between 1992 and 2008.
- The standard FMMP numbers do not accurately document the impact on farmland of single, low density rural residences and commercial development—a trend not included in the urban and built-up definition. Separately, the FMMP estimated that 1,028 acres in Merced County were converted from agricultural to rural residential and commercial uses from 2002-2004, and 248 acres were converted to vacant or disturbed land. However, between 2006-2008 the FMMP estimated that only 180 acres in Merced County were converted from agricultural to rural residential and commercial uses, but 1,597 acres were converted to vacant or disturbed land uses.

The FMMP numbers do not allow us to identify the extent of agricultural land conversions due to county government actions. They are aggregated, countywide totals that do not distinguish between unincorporated areas and areas controlled by the several incorporated cities. But it is clear that most conversions from agricultural to urban and built-up categories have been the result of city expansion and development actions. Some of the land conversions may also be a result of minor subdivision activity that has occurred between 1998 and 2008 that has resulted in the subdivision or re-subdivision of approximately 2.7 percent of all A-1 and A-2 zones, which included 66 percent, or two-thirds of all Minor Subdivisions recorded in Merced County over the 10-year period. By far most of the county's population increases and urban development occurs in incorporated communities, because of city-provided urban services and the county's land use policies that emphasize an urban centered growth strategy.

Some conversions of course do occur as the result of development actions approved by County government. Included are residential subdivisions and commercial projects located in larger unincorporated SUDPs with water and sewer services. Also, virtually all of the low-density rural residential projects noted above are located in unincorporated areas.

### **Urban-Agriculture Edge Patterns**

The conventional wisdom among agricultural leaders and decision makers in Merced County is that the edge problem is serious and growing in severity as the urban population expands. As in other California counties and communities where residential and commercial development occurs next to or in close proximity to intensely cultivated farmland, the negative effects of this juxtaposition of incompatible land uses flow in both directions. Agricultural operators experience vandalism, pilferage of crops, dog attacks on livestock, restrictions on pesticide use and other practices, congested local roads, and other impacts that reduce productivity and income. Residential neighbors, for their part, are often unhappy with the dust, noise, odors, early morning operations, chemical use, and other effects on quality of life and even perceived health problems.

Negative impacts on farm operations generated by development are not solely the result of intensive urbanization, typified by large-scale residential subdivisions and commercial centers on the fringes of cities. Agriculture is also severely affected by the creation of relatively small numbers of individual residences on large lots scattered throughout the countryside. Indeed, such development is often more harmful to farm operations that require large acreages for production than more intensive urbanization. It is a relatively inefficient way of accommodating new residences, dispersing rather than concentrating homes, fragmenting the agricultural landscape and thus increasing the exposure of farms to residential neighbors. The 20- and 40-acre minimum parcel sizes in the county's general agriculture zones, intended to deter residential development, often do not achieve this purpose because of the continuing demand for country living and the ability of many prospective homebuyers to afford such properties.

The Merced County Agricultural Commissioner's office, because of its pesticide regulatory responsibilities, as well as other County departments, receive citizen complaints regarding agricultural operations. But the County does not have a systematic data-base on edge issues. Anecdotal evidence is plentiful, however. In an informal interview, Agricultural Commissioner staff offered numerous examples of complaints from residential neighbors, including noise from zone guns, rodents emerging from orchards, bee swarms, dust and noise from almond harvests, crop duster flyovers over schools, and early morning tractor noise. On the agricultural side of the equation, adjustments to farming practices are common among operators in edge situations.

By one measure, there is widespread exposure of farms to residential development in Merced County. Borders between urban areas and adjacent cropland in the county stretched for 489 kilometers (303 miles) in 1998, a calculation based on FMMP data. This was a 37 percent increase in the linear edge measure from 10 years earlier.

*Please See Next Page*

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Another picture of local edge patterns is found in a recent UC Cooperative Extension study (published as of September 2010) of agricultural-urban conflicts in three counties, including Merced, San Diego, and Monterey. The Merced County portion of the research examined edge patterns on the fringes of the cities of Los Banos and Livingston. The field research in the two areas was conducted in 2004-05.

Table 4-7 compares the two edge segments according to conflict patterns and community characteristics. As expressed by residents and farmers, edge conflicts in recent years have been more intense around Los Banos than in the Livingston area. Likely explanations of the difference can be found in community characteristics, especially variations in recent population growth patterns and the backgrounds of new residents. Located on the west side of the county close to Interstate 5 and a direct link to the East Bay Area, Los Banos has experienced much more population growth since 1990 than Livingston. Most of this growth has come from the Bay Area, with many new residents commuting to jobs in that region. By contrast, Livingston newcomers have mostly come from other Central Valley locations and have had shorter commutes to places of work. The implication is that Los Banos newcomers are more urban in background and have less experience with rural conditions than those in Livingston and hence are less likely to be sympathetic to the cultivation practices of nearby farms and ranches.

<b>TABLE 4-7 Agriculture-Urban Edge Patterns Around Two Merced County Cities</b>		
Patterns	Los Banos	Livingston
Edge Segment Analyzed.	N, W, S sides of city	S side of city
Relative Degree of Edge Conflict.	High	Moderate to low
Complaints of Residential Neighbors, in approximate order of frequency.	Airplane/copter noise, smell of defoliant, air quality, dust, pesticide drift.	Spray drift, noise, odor, night work on tree crops.
Complaints of Farmers, in approximate order of frequency.	Proliferation of new residences, trash, vandalism, theft, trespassing by kids.	Limitations on chemical use, trash dumping, theft, vandalism.
Recent changes in community characteristics.	Rapid population influx from Bay Area, with commuters replacing local agricultural focus. Food processing and dairies still active.	Modest growth with newcomers from other Central Valley communities. Ag processing continues as main local industry.
2000 City Population, Recent % Increases.	25,869, + 72.8% (1990-2000), + 18.5% (2000-04).	10,473, + 43.1% (1990-2000), + 11.7% (2000-04).
Residential Mobility, 1995-2000	Different house—53.1%; Different county—33.8%	Different house—39.2%; Different county—7.0%..
% of Labor Force spending 30 minutes or more to travel to work.	18.2%--1990; 49.4%--2000.	16.3%--1990; 19.8%--2000.

Source: Census data and field research conducted in 2004-05 for “California Agriculture at the Urban Edge” project, UC Cooperative Extension—Alvin D. Sokolow, Maxwell Norton, Ramiro Lobo, Sonya Varea-Hammond and Evan Schmidt

## 4.5 Farm and Commodity Trends

### Introduction

Merced County agriculture has been remarkably stable in recent decades when measured by number of farms, farm size, and types of commodities produced. At the same time, the value of farm commodities produced, crops, and animals, has substantially increased—reflecting one of the most prosperous county-level agricultural sectors in California. This section examines changes in these and other key indicators of the county’s agriculture over the past two decades, based primarily on U.S. Census of Agriculture data and the annual commodity reports published by the Merced County Agricultural Commissioner. Reported at five-year intervals with the most recent data from 2007, Census of Agriculture data and the 2010 Agricultural Commissioner Report information.

### Key Terms

There are no key terms for this section.

### Regulatory Setting

There is no regulatory setting for this section.

### Existing Conditions

According to Table 4-8, data on farm numbers and sizes show these changes for 1987-2007:

- Farm numbers in Merced County decreased by 14% during the 20-year period, while the statewide number dropped less substantially by 2.6%
- No clear trend is evident for changes in the average size in acres of Merced County farms, while for California as a whole average size declined somewhat (likely because of the drop in total farm numbers).
- The proportions of Merced County farms in different size categories changed somewhat in 1989-2007—relatively the same number of small operations (1-49 acres), somewhat more medium-sized farms through 2002, but less by 2007 (50-500, and slightly proportionately more large farms (500+). By comparison, size proportions for all California farms slightly increased for small operations, remained constant for medium-sized and large-scale farms.
- More than half of all Merced County farms in 2007 were in the smallest size category—under 50 acres. While this included some serious operations, producing high value crops, many small agricultural parcels serve primarily as rural home sites with little commercial production. The Census of Agriculture definition of a “farm,” in fact, is one that generates at least \$1,000 in annual commodity sales—a less than meaningful threshold in economic terms. (About a fifth of all Merced farms in 2007 produced commodities valued at less than \$2,500.)
- Merced County has been a state leader in the economic growth recorded by its farms in the past two and a half decades, when measured by change in the market value of all commodities produced locally. Between 1981 and 2005, the total value in unadjusted terms more than tripled—from \$759

million to \$2.46 billion. (The inflation-adjusted value increased by 64 percent during the period.) This far exceeded the 24 per cent increase in market value for all of California agriculture. As a result, Merced County’s share of total state value shot up from 2.8 to 6.8 percent, with an increase in the county’s statewide rank from 8<sup>th</sup> to 6<sup>th</sup> in the United States.

**TABLE 4-8  
Farms and Farm Size, Merced County and California, 1987-2007**

	1987		1992		1997		2002		2007	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
<b>Merced County</b>										
<b>Number of Farms</b>	<b>3,048</b>	--	<b>2,879</b>	--	<b>2,831</b>	--	<b>2,964</b>	--	2,607	--
Average Acres	344	--	340	--	311	--	339	--	399	--
Size Group										
1-49 ac	1,680	55.1%	1,547	53.7%	1,485	52.5%	1,483	50.0%	1,451	55.6%
50-500	1,042	34.2%	1,004	34.9%	1,039	36.7%	1,127	38.0%	828	31.8%
500 +	326	10.7%	333	11.6%	307	10.8%	354	11.9%	328	12.6%
<b>California</b>										
<b>Number of Farms</b>	<b>83,217</b>	--	<b>77,669</b>	--	<b>74,126</b>	--	<b>79,631</b>	--	81,033	--
Average Acres	368	--	373	--	374	--	346	--	313	--
Size Group										
1-49 ac										
50-500	51,195	61.5%	47,574	61.3%	44,912	60.6%	49,134	61.7%	53,358	66%
500 +	23,045	27.7%	21,395	27.5%	20,558	27.7%	22,097	27.7%	19,953	25%
	8,977	10.8%	8,700	11.2%	8,656	11.7%	8,400	10.5%	7,722	9%

Source: Census of Agriculture, 2009 and earlier years

How do we explain this rapid growth in the value of local agricultural products? Much can be attributed to the county’s commodity mix, access to strong and expanding markets, and farm productivity. A part of the growth undoubtedly is due to shifts among farm operators in commodities grown, from relatively low value field crops to higher value fruits, nuts, vegetables, and nursery products. Overall, however, the mix of top commodities grown in Merced County has been constant in recent decades. Table 4-9 lists the top 12 commodities in market value at five-year intervals between 1981-2010. Milk, chickens, almonds, and cattle were regularly in the top four places. The most notable changes over time in the top 12 commodities were the disappearance of peaches after 1990 and the steady rise of sweet potatoes after 1990, the decrease in cotton, and the increase in nursery products. Collectively, the top 12 commodities accounted for more than 85% of total market value throughout the 25-year period.

**TABLE 4-9**  
**Top 12 Agricultural Commodities by Market Value (millions), 1981-2009**

Rank	2009	2005	2000	1995	1990	1985
1	Milk \$ 661.0	Milk \$ 711.8	Milk \$491.6	Milk \$359.1	Milk \$ 279.4	Milk \$226.1
2	Chickens \$306.2	Chickens \$299.6	Chickens \$153.3	Almonds \$141.0	Chickens \$140.7	Chickens \$102.6
3	Almonds \$245.2	Almonds \$292.9	Tomatoes \$112.6	Chickens \$124.2	Almonds \$102.7	Cattle \$61.5
4	Cattle \$214.8	Cattle \$271.5	Cattle \$109.1	Cotton \$77.3	Cotton \$69.4	Almonds \$58.7
5	Sweet Potatoes \$171.9	Sweet Potatoes \$91.2	Almonds \$94.7	Tomatoes \$56.8	Alfalfa \$62.2	Alfalfa \$43.4
6	Tomatoes \$159.2	Tomatoes \$90.9	Cotton \$69.8	Alfalfa \$56.0	Cattle \$49.1	Cotton \$40.2
7	Eggs \$80.9	Alfalfa \$89.3	Sweet Potatoes \$57.2	Cattle \$40.0	Tomatoes \$41.6	Tomatoes \$32.0
8	Alfalfa \$74.3	Eggs \$75.2	Alfalfa \$56.5	Sweet Potatoes \$37.8	Turkeys \$32.2	Corn \$19.9
9	Corn \$69.5	Cotton \$62.5	Turkeys \$43.7	Turkeys \$30.3	Eggs \$27.9	Sweet Potatoes \$19.8
10	Turkeys \$53.4	Corn \$57.0	Wine Grapes \$38.6	Eggs \$25.8	Wine Grapes \$23.7	Turkeys \$19.3
11	Wine Grapes \$41.8	Turkeys \$39.5	Corn \$36.1	Wine Grapes \$24.8	Sweet Potatoes \$21.9	Eggs \$16.9
12	Nursery Products \$38.6	Wine Grapes \$34.3	Eggs \$30.3	Corn \$23.2	Peaches \$19.2	Wine Grapes \$15.5

*Source: Annual Reports of Agriculture, Merced County Agricultural Commissioner (2009)*

Increases in farm productivity also contributed to the growth in market value. Trends over a 25-year period, 1983-2009, are described in Table 4-10. Per-acre yields increased for each of the seven commodities listed, although weather conditions also played a role in some years.

It is important to add an indication of farm profitability to this analysis. Raw market value numbers tell us little about the economic bottom line for agricultural operators; one must examine the ratio of expenses to income. By this standard, 56.8 percent of Merced County farms and ranches reported net income gains in 2002 as compared to 44.9 percent statewide. Profitability levels fluctuate year by year, depending on market, climate, and other agricultural conditions. The previous Census of Agriculture, in 1997, reported that 63.2 percent of Merced County operations had net income gains.

**TABLE 4-10**  
**Average per Acre Productivity for Leading Commodities, Merced County**  
**1983-2009**

Commodity	Unit of production	1983 per acre	2005 per acre	2009 per acre
Corn Silage	Ton	23.0	26.2	26.27
Cotton	Pound	860	1300	NA
Antelopes	Pound	18,270	22,308	NA
Sweet Potatoes	Ton	10.9	15.0	16.28
Processing Tomatoes	Ton	28.2	28.9	45.51
Almonds	Ton	.30	.83	.82
Wine Grapes	Ton	7.3	10.7	11.36

Source: Annual reports, Merced County Agricultural Commissioner, 2009

Finally, we can provide some documentation for the significance of Merced County farms as business enterprises, representing major investments, revenue flows and income. The average local farm in 2002 had these economic characteristics:

- An estimated market value of \$1.3 million in land and buildings.
- An estimated market value of \$114,000 in machinery and equipment.
- \$419,663 in farm production expenses.
- \$475,457 in commodity income.

In 2007, while the estimated market value of the average local farm in Merced County increased for land, buildings, and equipment, the difference between farm production expenses and incomes became greater. Below is a summary of these economic characteristics:

- An estimated market value of \$2.8 million in land and buildings.
- An estimated market value of \$198,153 in machinery and equipment.
- \$672,997 in farm production expenses.
- \$240,383 in commodity income.

## 4.6 Agriculture and the Local Economy

### Introduction

Detailing just the characteristics of farms and ranches gives only a partial picture of the significance of agriculture in Merced County. Local agriculture production is not self-contained, but takes place in the larger context of the county's entire economy. Agricultural production is closely linked in many ways with other sectors of the economy. The linkages flow in both directions; on one hand, farm and ranch production benefits the broader economy and, on the other, it depends on the underlying economy. Production agriculture creates value for the outside world while acquiring resources from the outside for its operations.

This distinction, not always a sharp one, is between agricultural outputs and inputs, the impacts of farms and ranches on the general economy and their continuing need for support services and other resources from that larger economy. This section briefly describes both kinds of relationships. As we note, the linkages extend way beyond the borders of Merced County, since local agriculture is a major player in national and global markets.

**Key Terms**

There are no key terms for this section.

**Regulatory Setting**

There is no regulatory setting for this section.

**Existing Conditions**

**Agricultural Outputs: Economic Impacts**

A starting point is to note the “multiplier” effects of the commodities that are grown on farms. For every dollar of value earned at the farm-gate in plant and animal sales, additional dollars are generated among other businesses and workers as the products flow through the economy. The rule of thumb among agricultural economists is that the average multiplier is 3.0; one dollar in direct farm production adds two additional dollars in indirect activity (shipping, processing, farm equipment and supplies, fuel, etc.) for a total of three dollars in overall economic value.

<b>TABLE 4-11 Estimated Economic Multipliers for Selected Merced County Crops</b>			
<b>Crop</b>	<b>Multiplier</b>	<b>Average Yield</b>	<b>Average Price</b>
Almonds	2.5	2500 lbs/acre	\$2.42./lb
Cling Peaches	6.0	18 tons/acre	\$236.00/ton
Processing Tomatoes	6.0	42 tons/acre	\$50.00/ton
Market Tomatoes	3.0	1100 boxes/acre	\$5.50/box
Sweet Potatoes	3.0	662 boxes/acre	\$7.00/box

*Source: Maxwell Norton and Scott Stoddard, “Contribution of Selected Agricultural Activities in Merced County.” UC Cooperative Extension, September, 2005.*

Individual commodities obviously have different multipliers, depending on the extent of their handling after leaving the farm. Table 4-11 presents estimates of multipliers for five Merced County crops, based on the work of the UC Cooperative Extension office in the county. Higher multipliers are assigned to peaches and processing tomatoes, because of the cooking and canning that occurs as they are turned into final consumer products. Almonds, market tomatoes, and sweet potatoes, on the other hand, have lower multipliers because they are more directly marketed to consumers as fresh produce. Using the multiplier standard, the \$2.7 billion in farm market value recorded in 2010 translates into more than \$8.1 billion in total economic value for Merced County.

<b>TABLE 4-12 Agriculture-Related Employment by Merced Industry Sector, 2005</b>				
<b>Industry</b>	<b>Annual Employment, 2005</b>	<b>Rank</b>	<b>% of All Industries</b>	<b>% Change, 1990-2005</b>
All Industries	68,634	--	--	21.2
Food Manufacturing	6,866	1	10.0	14.5
Crop Production	4,048	2	5.8	- 28.0
Agriculture Support Activities	3,540	4	5.1	N/A
Animal Production	2,852	5	4.1	29.6
<b>Total</b>	<b>17,306</b>	<b>--</b>	<b>25.2</b>	<b>N/A</b>

*Source: U.S. Department of Labor, Bureau of Labor Statistics (2006), Quarterly Census of Employment and Wages. As reported in Congressional Research Service (2005), California's San Joaquin Valley: Region in Transition.*

Another way of documenting the overall economic impacts of farm production is to examine employment patterns. By this standard, about a third of workers in Merced County are directly or indirectly tied to local agriculture. Table 4-12 shows the number of workers in the county employed as of 2005 in four agriculture-related industry groups—food manufacturing (processors), crop production, agriculture support, and animal production. All are ranked among the top five industrial groups in the county, with food manufacturing in the number one spot.

Collectively, these four groups account for about 25 percent of total reported employment. But this is not a complete count of agriculture-related work in the county, as the following items explain:

- Although less completely related than the top four groups, there are strong agricultural connections in several other industry groups—notably truck transportation, motor vehicle and parts dealers, and merchant wholesalers.
- The data in Table 4-12, reported by the Bureau of Labor Statistics of the U.S. Department of Labor, are for employees covered by State unemployment insurance programs. Not covered are significant numbers of workers in agriculture, including farm owners and farm workers hired through labor contractors.
- The 2002 Census of Agriculture reports 19,727 hired farm workers—many of them seasonal—for Merced County farms, far more than the combined total of 6,900 employees for the crop and animal production categories in Table 4-12.
- The 2007 Census of Agriculture reported a decrease to 15,585 hired farm workers—again many of them seasonal—for Merced County farms.

Still another kind of economic impact of local agriculture is its status as a net exporter of goods to markets outside Merced County—in effect earning revenue from selling to customers elsewhere. The external markets are other counties in California, other states, and other nations. In 1996, food manufacturing and agriculture production combined earned more than \$1 billion in net exports, while “all other broad sectors” in the county were net importers. As to international markets for local products, the 2009 report by the

Agricultural Commissioner notes that at least 17 commodities were exported in significant quantities to over 60 countries.

## **Agricultural Inputs**

Productive farms depend on the support and services of other sectors; a healthy agricultural economy in a community is the result both of prosperity on the farm and a diverse local and regional network of agricultural support businesses. This is the economic infrastructure that undergirds agriculture production.

This infrastructure is large and is composed of firms that provide a large variety of services to farms and ranches. Included are suppliers of animal feed and fertilizer, land preparation services, pesticide applicators, harvesting services, farm machinery and equipment manufacturers and outlets, post harvest services, trucking, warehousing, and management services.

The supply chain for local agriculture extends beyond Merced County. This is most notable in livestock and poultry production which require quantities of animal feed much larger than can be grown locally. Much of the alfalfa consumed by local dairies and cattle ranches is shipped from other California counties and other states (Idaho, Oregon, Nevada), while virtually all of the poultry feed is grain that is grown in the Midwest.

Processing plants and other markets also play a role in supporting local farms and ranches, although they are generally placed on the output side of the equation. They provide essential outlets and income for agricultural producers. Food manufacturers especially are critical outlets in Merced County since local farms and ranches produce large quantities of perishable commodities that require processing on the way to the ultimate consumers. So much of the county's fruits and vegetables go to canneries, fresh milk is processed by dairy and cheese plants, and livestock and poultry are shipped to slaughtering facilities. Three plants in Merced County are among the largest of their kind in the world—winery (E. and J. Gallo), cheese production (Hilmar), and poultry processing (Foster Farms).

## **4.7 Operator Characteristics**

### **Introduction**

There is a human side to the agricultural sector of Merced County, one that complements the purely economic dimensions described in the last two sections. As a number of writers have noted, farming and ranching is a way of life as well as a business enterprise. Indeed, farms are places of residence as well as places of work; more than 70 percent of Merced operators live on their farms, as Table 4-13 notes. For some agricultural operators, the intangible rewards of working the land and raising their families in the country at least partially offset the fluctuating economic and often poor returns received from the commercial activity.

### **Key Terms**

**Principal Operator.** Person primarily responsible for the on-site, day-to-day operation of the farm or ranch business.

**Ranchette.** A rural parcel, usually in the range of 2 to 20 acres, used primarily as a single-family homesite with the possibility of also producing a small quantity of farm commodities.

## Regulatory Setting

There is no regulatory setting for this section.

## Existing Conditions

The great majority of Merced County farms and ranches, as elsewhere in California, are family enterprises, with spouses and often children participating in the operation. Seventy-nine percent of all farms and ranches in the county are organized as family or individual entities in legal terms, according to the 2007 Census of Agriculture. Smaller numbers are organized as partnerships, family-held or other corporations, and other entities.

Table 4-13 presents several other key characteristics of local farm operators as compared to statewide patterns:

- More than a third of all local farms have multiple operators, typically family members.
- Slightly fewer principal operators in Merced County than statewide report in 2007 farming as their primary occupation, 61 percent as compared to 63 percent.
- Off-farm occupations are an important source of income for local farmers and ranchers; 46 percent of all operators reported working 100 or more days per year in off-farm jobs.
- Farm operators in 2007 reported an average of almost 20 years on the same farm; 71.6 percent of principal operators had owned the current farm for 10 or more years.

The aging of the farm operator population is a key issue for the agricultural future of Merced County and other California areas. Between 1987 and 2007, the average age of local operators increased from 52.3 to 56.4 years, the continuation of a steady trend that began some years before. For Merced County, however, the aging trend has been less rapid than for California as a whole. In 2007, Merced's mean operator age of 56.4 was almost two years less than the statewide average of 56.8. Likewise, as compared to all of California, proportionately more of the county's operators are under 45 years of age (19 as compared to 17 percent) while same proportion are 65 or over (27 as compared to 27 percent). Still, this has troubling implications: the increase in average age means that fewer young people are engaged in farming and ranching, and suggests an emerging shortage of persons interested in farming as an occupation. If true, this implies that farm numbers will continue to drop, in part through the merger of small farms into larger units, and that additional acres will be taken out of agricultural production.

There are two likely causes of the farm operator aging trend, both impediments to the entry of young people into the farm business. The first concerns the very high capital costs of acquiring land, equipment, and the other resources necessary to starting a new farm, especially if family inheritance or other assistance is not available. Second is the increasing tendency of farm family sons and daughters to look for careers away from the farm, a consequence of higher education experiences and negative perceptions about the personal risks and rewards of following their elders into farming.

There is not sufficient documentation available to discuss the extent of farm entry problems in Merced County.

**TABLE 4-13  
Farm Operator Characteristics, 2002 and 2007**

	Merced County		California
	2002	2007	2007
Total Principal Operators	2,964	2,607	81,033
Total All Operators	4,498	4,263	130,756
Farms with Multiple Operators	1,168 (39.4%)	1,127 (28.7%)	39,035 (29.9%)
Mean Age of Principal Operators	54.9 (52.3 in 1987)	56.4	58.4 (53.8 in 1987)
% under 45	22.1%	19.4%	13.6%
% 65 and over	23.2%	27.3%	31%
Primary Occupation Farming as % of Principal Operators	71.0.6%	59.5%	50.5%
100+ Days Worked Off Farm for Principal Operators	40.4%	46.4%	47.7%
Average Years on Present Farm	19.2	20.3	18.6
% 10 Years +	70.7%	71.6%	66.9%
Place of Residence on Farm as % of Principal Operators	70.9%	71.2%	73.3%
Women as % of Principal Operators	9.0%	7.7%	18.4%
Women as % of All Operators	21.1%	24.8%	33%

Source: Census of Agriculture, 2002 & 2007

## 4.8 Agricultural Land Markets

### Introduction

Land markets are another set of local conditions that affect the prosperity of agriculture in Merced County. The sales availability and prices of land for agricultural use is particularly important to farmers and ranchers seeking to expand their operations, usually to increase income by making more efficient use of equipment, time, labor, management expertise and other resources. Whether or not prospective purchasers can find suitable land that is affordable for farming or ranching results from a combination of factors, including location, the economics of producing particular commodities, and competition with residential and urban pressures.

### Key Terms

**Market Value.** Projected purchase price of land designated for a particular use—residential, agricultural, etc.—and based on a combination of recent sales of similar properties and estimates of real estate experts.

### Regulatory Setting

There is no regulatory setting for this section.

## Existing Conditions

Reported market values of Merced County agricultural land have increased in recent years, sharply escalating for some land depending on location and farm use. Table 4-14 lists 2003 and 2005 ranges in per-acre values for several categories of agricultural land. These trends are estimates prepared for an annual statewide report by rural land appraisers familiar with local market trends. While generally reflecting actual property sales, some of the estimates are less firm than others because of limited market activity in different categories during the years covered.

The table also includes information on the annual per-acre costs of renting land for agricultural purposes in several areas. In Merced County as in other strong agricultural areas, there is a solid market for leased land—an option that allows some farmers and ranchers to expand their operations without making the major expenditures needed to purchase more land. The availability of leased land, generally owned by persons including retirees who are not now directly involved in farming, also allows new operators to enter the agricultural area.

<b>TABLE 4-14</b> <b>Estimated Market and Lease Values per Acre for Agricultural Land</b> <b>in Merced County, 2003 and 2005</b>			
	<b>Market Values, 2003</b>	<b>Market Values, 2005</b>	<b>Annual Rent Range, 2005</b>
Cropland—Well Water	\$ 2,500 - 4,000	\$ 4,500 - 9,250	\$ 100 - 175
Cropland—Merced Irrigation District	\$ 3,500 - 6,000	\$ 8,000 - 20,000	\$ 130 - 225
Cropland—Turlock Irrigation District	\$ 9,000 - 12,000	\$15,000 - 23,000	\$ 175 - 300
Cropland—West County Exchange Contractor Water	\$ 2,500 - 6,000	\$ 4,200 - 7,600	\$ 150 - 200
Cropland—West County Federal Water & Other	\$ 2,500 - 4,500	\$ 3,500 - 5,500	\$ 100 - 160
Rangeland—West County	\$ 500 - 800	\$ 500 - 1,200	\$ 6 - 20
Rangeland—East County	\$ 500 - 1,400	\$ 700 - 1,400	\$ 12 - 22
Almonds	\$ 5,000 - 8,500	\$11,000 - 20,000	20 - 30% share
Walnuts	\$ 5,500 - 9,000	\$ 9,000 - 16,000	20 - 30% share
Dairies	NA	\$ 8,000 - 10,000 (interview estimates)	NA
Rural Residential	NA	\$15,000 - 25,000 (interview estimates)	NA

Source: California Chapter of the American Society of Farm Managers and Rural Appraisers. 2006 Trends in Agricultural Land and Lease Values. 2006. Interviews with rural land appraisers 2006.

As Table 4-14 notes, land values for some agricultural uses more than doubled or came close to doubling in 2003-05—including cropland in areas with reliable water supply and land used for growing almonds and walnuts. Rangeland and cropland on the west side served by federal water sources increased more modestly during this period.

What explains these differences? More generally, what factors drive the market value of land used for agricultural purposes in Merced County? Based largely on information provided by several rural lands appraisers in the county, the major determinants of local agricultural land values are farm economics, water supply and quality, dairy requirements, residential demand, and U.C. Merced.

### **Farm Commodity Prices**

Farmers can afford higher land prices to expand under either or both income and cost scenarios—when the prices they receive for their commodities are high and are likely to remain so and when their costs of production are held in check. Prospective purchasers assess the likely economic returns from producing certain commodities on the land to be acquired; sometimes the anticipated efficiency gains from spreading out fixed costs of production over a larger land base justify a high purchase price. The fact that Merced County producers of certain major commodities-- especially almonds, walnuts, and milk--have enjoyed higher commodity prices and expanded markets in recent years has raised the land affordability threshold for some farmers.

### **Water Supply and Quality**

Table 4-14 illustrates the importance of irrigation water considerations in land market trends. The reliability, cost, and quality of water delivered to fields is internalized in market values; access to relatively inexpensive and high quality water from a steady source translates into higher values. By these standards, parcels served by water supplied by the Merced Irrigation District and the Turlock Irrigation District earn a land market premium. Agricultural soil conditions affect market values in a similar way.

### **Dairy Requirements**

Perhaps the biggest demand for additional agricultural land in Merced County comes from local dairies. Dairies rank top among local farms in two disparate categories—in the dollar value of commodities produced and in the severity of agriculture-related environmental problems. (Chapter 8—Natural Resources identifies a number of other negative environmental consequences of agricultural operations in Merced County—including water quality effects of pesticides and other farm chemicals, salt buildup due to intensive irrigation, contaminants from the drainage off farm fields, and contributions to air pollution.) Dairies, considered a type of confined animal facility, have to dispose of enormous quantities of waste generated by dairy cows. Dairy operations require large amounts of land adjacent to or near milking facilities to dispose of the effluents. Wastewater is applied as irrigation for forage crops to feed the cows. With stricter requirements implemented in recent years, the demand for additional land has escalated. Because of high milk prices, some dairies have been able to pay more for land, although not always at levels justified by the commodity returns.

### **Residential Demand**

The attractiveness of country living affects land markets in Merced County in two distinct but related ways. On the one hand, there is a strong demand for homesites on 20- and 40-acre farm properties and even larger parcels. County zoning allows one home per 20- and 40-acre parcels in A-1 (General Agriculture) areas. Parcel divisions of 40-acre and larger agricultural properties down to 20 acres are periodically approved by

county government for residential purposes. With current prices in the \$15,000 - 25,000 per acre range for ranchette development in A-1 zones (more than \$200,000 per acre in A-R zones), or up to a total of \$500,000 for a 20-acre parcel, agricultural purchasers cannot compete with residential buyers for these small properties. Apparently there is no shortage of non-agricultural buyers, many from the Bay Area.

Rural residential prospects also are more generally and subtly captured in higher values for properties sold for agricultural purposes, since the land market considers possible future as well as immediate uses for the land. Higher values in particular affect farm properties that are located in the path of growth from cities and other urban centers.

### **University of California, Merced**

The new University of California campus also contributes to increasing land values for agricultural and other land, rural land experts noted in interviews. The impacts are not just in the immediate vicinity of the campus, a few miles northeast of the city of Merced, but are countywide. Those interviewed expect that the campus and its associated population influx will “put the area on the map” and generate more rapid and high quality urban development in Merced County.

Considering the last two items, it seems apparent that the residential and other pressures for urban development are emerging as the most important determinant of agricultural land market trends in Merced County, certainly impacting the affordability of land for agricultural uses. Planning and land use decisions by county government play an important role in this arena.

## **4.9 Agricultural Water**

### **Introduction**

Without irrigation, Merced County would have a far less productive and prosperous agriculture sector. The county sits in the middle of the San Joaquin Valley, a semi-arid region with little rainfall occurring during the crop growing season. Local agriculture depends on a reliable, voluminous and inexpensive supply of irrigation water, delivered directly to the fields and farm animal facilities at the right times. As in California generally, agricultural uses account for the great majority of water consumption in Merced County—more than 80 percent of all applied water when domestic, industrial, and environmental uses are considered.

### **Key Terms**

There are no key terms for this section.

### **Regulatory Setting**

There is no regulatory setting for this section.

### **Existing Conditions**

The last U.S. Census of Agriculture, covering the year 2007, reported 514,162 irrigated acres in the county contained in 2,127 farms. As Table 4-15 notes, this represented a little more than half of the total 1 million agricultural acres in the county and about 81 percent of all of the county’s farms. A much larger share of the county’s 593,000 cropland acres are irrigated, with the water applied to field, nut trees and other orchards, and

vineyards. Merced ranks fifth among counties in the state in agricultural acres irrigated and fourth in the number of farms with irrigated land. Local irrigated acres steadily expanded between 1992 and 2007, increasing by about 86,000 acres or one-fifth during this 15-year period.

Table 4-15 Irrigated Agricultural Land in Merced County, 1992-2007		
Year	Acres	Farms
1992	427,815 (43.7% of all agricultural land)	2,409 (83.6% of all farms)
1997	504,711 (54.8%)	2,340 (72.7%)
2002	518,538 (51.5%)	2,169 (73.1%)
2007	514,162 (49.3%)	2,127 (81.6%)

Source: U.S. Census of Agriculture, 2007

The system that makes this all possible consists of multiple sources of water and an extensive storage and delivery network of rivers, reservoirs, canals, ditches, pumps and outlets. Sections 7.2 and 8.2 of this background report describe the system in greater detail. It is a complex system, with both surface water and groundwater supplies for agriculture and other consumers, local and imported sources, and the participation of both public and private parties. Water sources include snowmelt and rain runoff from the Sierras, rivers and streams on the floor of the valley including the Merced and San Joaquin Rivers, water from the Sacramento River and Delta regions conveyed by massive state and federal canals, and pumping from public and private wells that tap local aquifers. Different supply combinations characterize eastern and western parts of the county. Sierra runoff is a major component of the supply on the east side while large amounts of state and federal water are delivered to agricultural and other users on the west side. Groundwater pumping from wells on individual farms produces most of the agricultural water, resulting in a water basin overdraft in several parts of the county.

Organized around more than 25 irrigation and other local special districts and several private companies, the county’s water infrastructure is highly decentralized. The districts cover nearly all of the county. For the most part, the districts are independent entities, created under State law, governed by separately-elected boards and managed by their own staffs. Most serve very small areas. Merced County government has no control over the districts and is not directly involved in water policy or management. Also there is no county-wide water agency or authority in Merced, unlike the arrangement in several other California counties. One consequence is that information on countywide water trends and needs is not readily available, although the California Department of Water Resources and other outside agencies provide some relevant data and analysis.

A partial exception to this data limitation is found in an interagency project that covers eastern Merced County. Since the early 1990s, the Merced Irrigation District—the largest water agency in the county—and the City of Merced have collaborated in a comprehensive examination of water needs in that region. Their 2001 report, *Merced Water Supply Plan Update*, prepared in cooperation with UC Merced, is an engineering and economic projection of water needs through 2040. The plan covers the 582,000 acre eastern half of the county, including the entire MID service territory, the county’s most urbanized concentrations along Highway 99, and about half of all agricultural acres in the county.

Even considering the water requirements of the region’s expanding urban population, the plan highlights the importance of maintaining reliable service to agriculture. Indeed, it identifies agriculture as the economic

engine of the region and makes an explicit link between the well being of the City of Merced and that of MID's farm consumers as follows:

...the economic strength of the City of Merced is inseparably tied to the financial success of Merced ID's customer base. A reliable source of water for irrigation results in a robust agricultural economy; an economy on which the City of Merced and other regional urban areas are dependent. (p. 1-1)

The plan (2001) estimates total water consumption of 1.1 million annual acre-feet for the region in 2040, 89.8 percent for agriculture. Several specific scenarios within this context could apply as well to other parts of Merced County:

- While urban demands will increase, they apparently are incremental in relation to the total supply and should not cut into agricultural consumption.
- The surface water supply from the Merced River will be reduced as the result of state and federal environmental regulations, including protection of fisheries and other habitat.
- Because of declining aquifer levels, more agricultural consumption should be shifted from individual farm wells to surface supplies, continuing a program already begun by the MID with incentive payments.
- Furthermore, higher energy costs will impede groundwater use on individual farms and could lead to changes in commodities produced.
- More attention will be given to recharging groundwater basins during good water years.

## 4.10 Major Findings

### General Plan Objectives and Policies

- The urban threat to farmland and agriculture is only in part a result of the intensive urbanization typified by city expansion and large residential subdivisions, office buildings, and shopping. The more serious impact, the 2000 General Plan suggests, comes from "land parceled into small rural holdings which are too small for efficient farming" (p. I-19), but provide large lot home sites.
- Cited also in the 2000 General Plan are the negative impacts on the county's agricultural operations from adjacent and nearby residential development, the clash of incompatible land uses at the so-called residential-agricultural "edge." Different objectives and policies call for compact urban boundaries to minimize such conflicts, protecting farmers from nuisance claims, and educating urban populations about the realities of agriculture.

### Conserving Farmland: Regulatory and Compensatory Tools

- Agricultural zoning categories in Merced County accommodate a variety of agricultural and residential uses.

- Since local adoption of the Williamson Act in 2000, the program has become a mainstay of the county's farmland protection efforts. In 2009, the County had the second largest net enrollment increase in Williamson Act land, with the addition of 12,029 acres.
- A portion of the property tax loss experienced by counties as a result of contracted land has historically been reimbursed by the State through Williamson Act subventions. Merced County was receiving \$1.4 million annually from this source for its General Fund until 2008, when the State eliminated the funding. Merced County now relies on a short-term funding solution to offset a portion of the subvention funding loss by reducing the Williamson Act contract terms, which reduces the landowner's property tax savings and allows an increase in the County revenues.
- Merced County's Right-to-Farm Ordinance, which has been in place since 1986, requires disclosure via the signing of an acknowledgement of the right-to-farm notice by prospective residents during residential development processes, and when building permits are issued.
- Conservation easements are a promising and growing tool for farmland and open space protection. They provide permanent protection for farms and open space from conversion to urban uses. Although no countywide total of land under agricultural or open space easements is available, the Central Valley Farmland Land Trust, which covers a four-county area, manages approximately 11,668 easement acres and holds 10,053 acres in the county (86 percent).

### **Urban Expansion Effects on Agricultural Land**

- The best agricultural soils, land in the prime category, have been disproportionately affected by agricultural land conversion. Between 1992-2010, 6.2 percent of prime farmland in the county was taken out of production, as compared to a decline of 1.7 percent for all agricultural land and roughly 3.3 percent for grazing land. Farmland of statewide importance, the second most significant in soil quality, also declined disproportionately—a loss of 6.7 percent during the period between 1992 and 2008.
- The FMMP estimated that 1,028 acres in Merced County were converted from agricultural to rural residential and commercial uses from 2002-2004, and 248 acres were converted to vacant or disturbed land. However, between 2006-2008 the FMMP estimated that only 180 acres in Merced County were converted from agricultural to rural residential and commercial uses, but 1,597 acres were converted to vacant or disturbed land uses.
- While the annual average loss of total agricultural lands resulted in a 1.7 percent decrease between 1992 and 2010, only a part of the loss was due to growth in urban areas. The extent of agricultural loss may be underestimated, since up to 6.4 percent of prime farmland and 6.7 farmland of statewide importance were taken out of production. Also, there are indications that in recent years, prime farmland loss has been accelerating, and that single, low-density rural residential development related to minor subdivision activity has slowly been converting agricultural lands to residential and commercial uses
- By far most of the county's population increases and urban development occurs in incorporated communities, because of city-provided urban services and the County's land use policies that emphasize an urban centered growth strategy.

- Farmland and agricultural lands have been impacted by urbanization due to city expansion, large residential subdivision development, and commercial development. However, the more serious impact, as suggested by the 2000 General Plan, has come from “land parceled into small rural land holdings, which are too small for efficient farming.”
- According to the 2000 General Plan, there has been a history of incompatible land uses and conflicts due to nuisances along the residential-agricultural “edge.” This is because the county’s agricultural operations often occur adjacent to or close to residential development.
- Farm numbers in Merced County decreased by 14 percent during the 20-year period, while the statewide number dropped less substantially, by 2.6 percent. More than half of the farms within the county in 2007 were in the smallest size category, which is under 50 acres. However, Merced County remains a state leader in economic growth recorded by its farms.

### **Farm and Commodity Trends**

- Stability characterizes agricultural trends in Merced County in recent decades, especially as measured by commodities produced and the number and sizes of farms.
- Local farms and ranches are generally profitable, in terms of income exceeding expenditures, in large part because of increasing productivity, strong markets, and the production of high value commodities.

### **Agriculture and the Local Economy**

- By the multiplier standard, the \$2.7 billion in farm market value recorded in 2010 translates into more than \$8.1 billion in total economic value for Merced County.
- Three plants in Merced County are among the largest of their kind in the world – wine making (E. and J. Gallo), cheese production (Hilmar Cheese), and poultry processing (Foster Farms).

### **Operator Characteristics**

- Approximately 79 percent of Merced County farms and ranches are family enterprises, with spouses and children often participating in the operation.

### **Agricultural Land Markets**

- There is a high demand by individual farms for additional land is strong because of the desire of increased production efficiencies and the particular need of dairies for land to dispose of waste.
- Increasingly in Merced County, urban pressures compete with agriculture for land, forcing up market values to levels prohibitive for most farm operations.

### **Agricultural Water**

- With more than a half million acres on more than 2,127 farms in irrigated land, local agriculture is heavily dependent on a reliable and inexpensive water supply.
- Major challenges to the agricultural water arena as declining aquifer levels, expected reductions of Merced River supplies because of environmental constraints, regular redirections in deliveries by the Bureau of Reclamation for Central Valley Project water, and increased energy costs of pumping.