



About This Report

This report is part of The New Valley Connexions program of the Great Valley Center in partnership with the California Trade and Commerce Agency, Office of Strategic Technology. The Great Valley Center is a regional resource to help people successfully manage growth and change in the Central Valley. The purpose of the research grant was to “identify opportunities to grow technology-based clusters in the San Joaquin Valley in order to make the Valley more competitive, enhance its base of agriculture and natural resources, attract compatible investment, and improve the quality of life.” The report was prepared by Collaborative Economics, strategic advisors to civic entrepreneurs, based in Palo Alto, California.

The document is intended to stimulate discussion and catalyze action. The Great Valley Center and Collaborative Economics welcome your comments and further suggestions.

The San Joaquin Valley Region

Counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare

Total area: 27,280 square miles; 17% of the land area of California

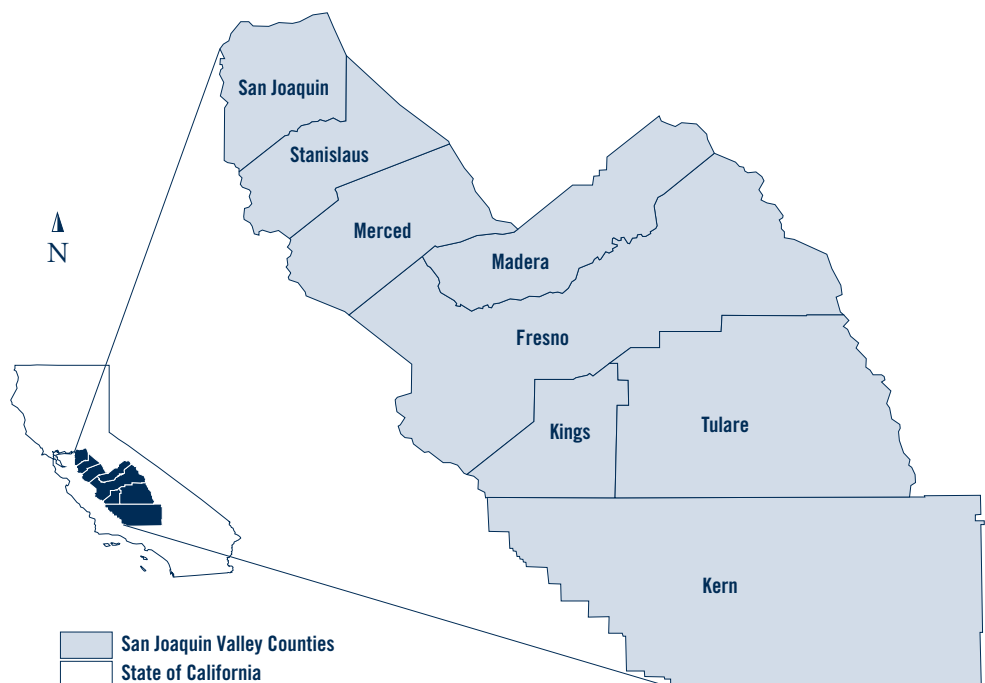
Total population: 3.3 million; 10% of California’s population

Ethnic composition: 53% white, 34% Hispanic, 8% Asian/Pacific Islander, 4% African American, and 1% Native American

Age distribution: 0–9 years old, 18%; 10–19 years old, 16%; 20–44 years old, 36%; 45–64 years old, 19%; 65+ 10%

Adult educational attainment: 66% are high school graduates; 14% have bachelor’s degree

NEW VALLEY CONNEXIONS PROJECT AREA: THE SAN JOAQUIN VALLEY





Executive Summary

The Great San Joaquin Valley. The richest agricultural region in the world. The low-cost place to live in California. Crossroads of California history. The next California frontier. Home to some of California's oldest families. Home to the newest and youngest Californians. A place that has changed slowly in the past decades. A place that could change beyond recognition.

The San Joaquin Valley is critically important to California and to the nation, as well as to the people who live there. The San Joaquin Valley is growing at a faster rate than the State. The region accounts for 50% of the state's agricultural output. It is vast, spanning more than 250 miles in length and accounting for 17% of the state's land mass.

In many ways the region is a microcosm of the challenges, opportunities, and dichotomies facing the state, played out across a vast expanse of land marked by both large urban centers and diffuse rural settlements. How to make the new demographics work, how to ensure sensible development patterns, where to house the next 10 million people, how to develop next-generation leaders—all have been the subject of intense speculation, research, and debate.

Yet it is the economic opportunities in the Valley that will in the long run shape these societal challenges and the context for addressing them. This report and the research underlying it examine two questions:

- What can be the economic future of the San Joaquin Valley?
- How can the region achieve that future?

Whereas others have pointed out the problems in the San Joaquin economy, this report looks explicitly at opportunities—opportunities that are achievable in the next 10 to 20 years, that build on the best assets and traditions the region has to offer, that fit with global business trends, and that will benefit companies and communities, people and place.

This report paints an achievable vision of a San Joaquin Valley economy rooted in innovation, where people and companies compete globally by continuously improving products, services, and processes. It identifies six cluster opportunity areas that can emerge as strong drivers of the regional economy and can gain national and international prominence. It argues that this economic evolution can result in economic prosperity, growth of a broad and upwardly mobile middle class, and an increasingly vital and interesting quality of life. It points out the emerging signs that the San Joaquin Valley already is poised to become a key regional player in California's new economy. And it outlines strategic recommendations for achieving these goals.

California's "New Economy"

The San Joaquin Valley is one of several major economic regions constituting the state of California. From 1994 to 1996, the California Economic Strategy Panel researched the fundamental economic change taking place statewide and identified a "new economy" transforming California's regions. The panel's report, *Collaborating to Compete in the New Economy*, defined and described this new California economy.



What Is the New Economy?

To many people's surprise, the new economy is not a set of new industries. Rather, the new economy is about all industries competing in fundamentally different ways. It is not just about "high tech," but about applying new ways of doing business to a wide range of products, services, and sectors. Activities in the new economy share some characteristics. The new economy is fast, global, knowledge based, networked, and technology-intensive.

- **Fast.** Time is market in the new economy. Companies compete to develop and produce innovative products and services faster than their competition.
- **Global.** New economy companies operate and sell globally and compete against foreign competition.
- **Knowledge based.** The knowledge and know-how of employees are essential to the success of new economy companies.
- **Networked.** New economy companies specialize in what they do best and develop relationships with partners, suppliers, and subcontractors to do the rest. They tap into information and innovation networks to stay abreast of change.
- **Technology-intensive.** Companies in the new economy create, adapt, and use technology—simple as well as sophisticated—to improve products and processes constantly.

What these characteristics boil down to is innovation. To compete today, companies have to innovate continuously. They must develop better products and services faster than the competition. The new California economy is an innovation-based economy. This characterization is true from apparel to agriculture, from timber to telecommunications, from light industrial manufacturing to software.



Joining the New Economy

The San Joaquin Valley can and must join the new economy. Doing so will entail a shift in how the San Joaquin Valley and its companies compete. Instead of competing primarily on low cost, more and more companies must compete on high productivity and serve increasingly sophisticated and demanding markets.

This transition is already under way, but must be nurtured and accelerated. Some signs of the new economy:

- World Color in Merced, whose flexible high-tech production process allows it to meet national demand for customized printing products
- Farmington Fresh in Stockton, whose innovative packaging provides value-added food products to the national and Asian marketplace
- Skylynx Communication in Fresno, whose innovative wireless technology is providing Internet services to growing technology-based businesses in the San Joaquin Valley and beyond.

Despite some emerging signs of the new economy, the current path of the San Joaquin Valley economy is based on population and cost-driven growth. People from Mexico, California, and other states and countries have been moving to the Valley, attracted to its relatively low living costs, and the population is expanding rapidly because of high birth rates. From 1990 to 1999, population in the San Joaquin Valley increased 22%. And an additional 885,000 people are likely between 1999 and 2010. Population growth has spurred job growth in people-serving industries, such as housing construction and retail. This activity creates the appearance of economic vitality.

The shortcoming of a population-driven strategy is that it does not lead to a rising standard of living and long-term vitality. Despite this rush of construction and retail activity, job growth has lagged labor force growth since 1990. And employment growth has actually led to a declining standard of living. Per capita income declined from \$19,800 to \$18,950 in real terms between 1990 and 1997. Sunbelt states such as Arizona and Florida experienced this phenomenon in the 1980s, when population and job growth actually resulted in a lower standard of living and the population-induced boom was not sustainable.

Just as people are attracted to the Valley's low costs, so are companies. The region has attracted companies to its growing supply of low-skilled, low-cost labor and relatively inexpensive land. Although this activity can provide a platform for future growth, competing primarily on low cost and routine production is ultimately a losing proposition. In a global economy, another lower-cost location will always develop. The southern U.S. states learned this hard lesson when they attracted textile mills from New England in the 1980s, only to see them relocate to lower-cost Caribbean locations in the 1990s. In addition to this vulnerability factor, a strategy of keeping costs low will keep household incomes low. The current path of population and cost-driven growth is flawed in the long run; it cannot lead to sustained increases in standard of living and broad-based economic vitality.

True economic vitality over the long run requires developing significant outward-oriented sectors that compete on innovation and that serve sophisticated state, national, and international markets. These driving industries will pay strong wages and provide a sustained stimulus to the growth of local-serving sectors such as retail, services, and construction.



Models of Economic Growth

DRIVERS OF GROWTH

REGIONAL OUTCOMES

Population-Driven

- Population growth
- Attraction of low living costs
- Local markets to serve

- Veneer of vitality
- Short-term/boom-and-bust cycles
- Declining standard of living

Cost-Driven

- Companies attracted to low-cost labor
- For routine production, services

- "Move-on" syndrome
- Wage increases, which put region at risk

Commodity-Driven

- Natural resource availability
- Global commodity markets to serve

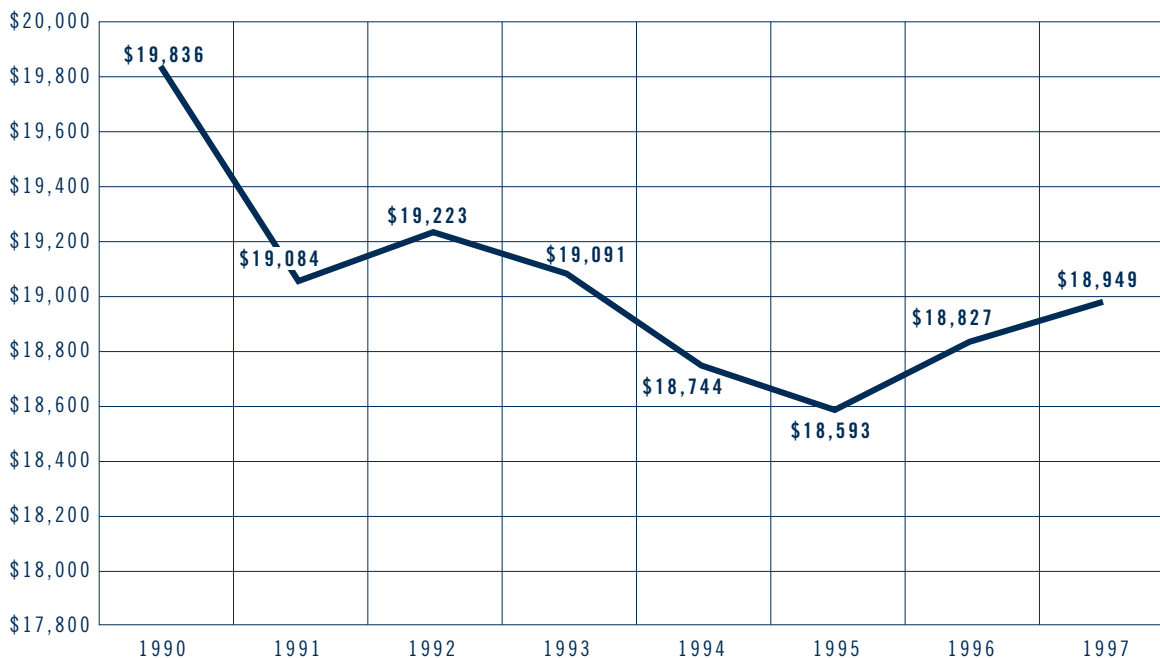
- Possibility of cycles
- Declining direct employment

Innovation-Driven

- Value creation
- Product differentiation
- Increased productivity
- Sophisticated global markets to serve

- Rising standard of living, income mobility
- Resilience
- Diversification

San Joaquin Valley Per Capita Personal Income (1998 dollars)



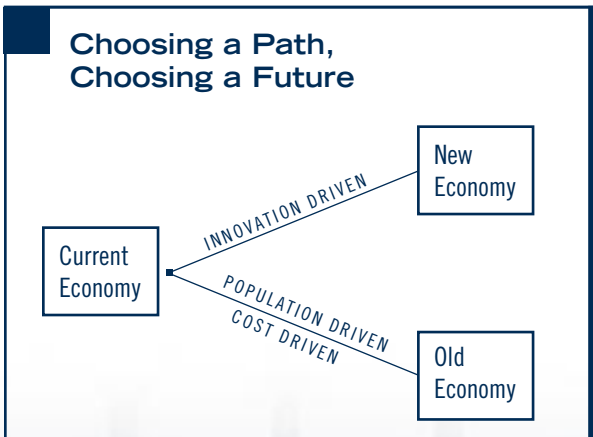
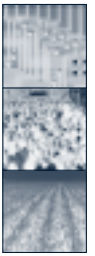


The current outward-oriented driver of the San Joaquin Valley is agriculture production. Farming accounts for 12% of the region's gross product and 8% of its employment base. A major finding of this report is that production agriculture does have many features of the new economy. It has shifted from basic to specialty crops, enjoys rising productivity, and is a major integrator of technology—biotechnology, information technology, spatial technology. And certainly farming has stimulated a host of local support industries: distribution, engineering, business services.

Yet, as the primary driver of the regional economy, agriculture production has two fundamental weaknesses. First, direct employment is declining, as farms substitute technology for labor. Second, reliance on agriculture alone subjects the region to the vagaries of global commodity markets and agriculture labor markets, absent counterbalancing economic activities.

The long-term challenge facing the San Joaquin Valley is to develop a broader portfolio of outward-oriented industries that provide opportunities for more people to earn a higher standard of living. Achieving sustained increases in prosperity requires rising productivity. Productivity growth is the basis for rising real wages for workers and consequently, for a rising standard of living over time. The way to increase productivity is to find new, more highly valued ways to leverage natural, human, and capital resources.

The Valley needs to evolve toward high-value manufacturing and service activities that compete on new economy factors: innovation, speed, global perspective, knowledge, networks, flexibility, technology. Employment in these outward-oriented, innovation-based industries must grow faster than population growth and the industries must become a more dominant driver of employment and revenue in the San Joaquin Valley.



Envisioning the Economic Future

The research underlying this report addressed the question, “What is a desirable and achievable economic future for the San Joaquin Valley?”

The research approach included quantitative economic analysis, interviews with more than 100 Valley companies and leaders, and research on industry, market, and technology trends.

The research approach rests on several key principles:

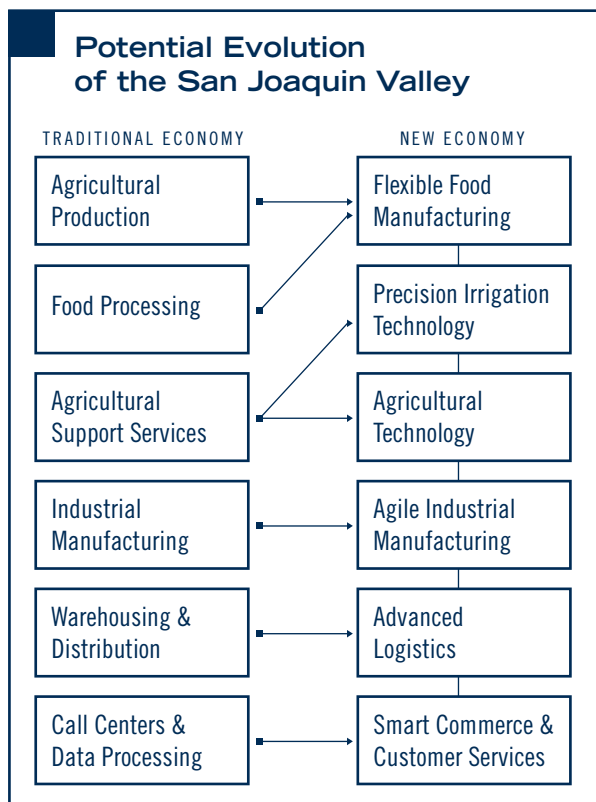
- *Regional economies grow from what currently exists.* New economic drivers evolve out of the existing company competencies and the workforce skills and experience base in a region. Driving industries must serve markets beyond the San Joaquin Valley.
- *Industry, technology, and market trends shape opportunities.* External and internal market trends and interregional dynamics create strategic opportunities for companies and industries in a particular region to grow.
- *Leadership can make a difference.* Leaders can take initiative to accelerate the evolution of an economy toward a higher-value future.
- *Catalysts can change the path.* Catalytic initiatives can spark movement of companies, institutions, communities, and people to realize the vision.



Six Opportunity Areas

This report paints an achievable vision of a San Joaquin Valley economy rooted in innovation. The vision is grounded in six specific opportunity areas that can emerge as strong drivers of the regional economy.

Each of these specialties can evolve from the San Joaquin Valley's current base of activities in agriculture production, agriculture support services, food processing, call centers, warehousing/distribution, and industrial manufacturing. Driving external forces—trends in industry structure, technology, customer requirements, competition—create these opportunities. The opportunity areas have synergy with each other. Progress in developing a single area will enhance progress in others. All these activities are nascent and require significant scale-up to create critical mass.



The six opportunity areas are described below.

- **Flexible Food Manufacturing.** A key finding of this report is that agriculture is joining the new economy. Responding to increased competition and global market opportunities, segments of the agriculture industry already are competing on new economy factors—taking risks, developing new products, creating and integrating technologies, serving sophisticated and global markets. The opportunity is to transform more agriculture products into manufactured food products—a fast-growth, high-value global market.
- **Precision Irrigation Technology.** Global demand for fresh water for urban and environmental uses will drive further innovation in the irrigation industry. Future market growth will come more from turf and landscape irrigation than from agricultural irrigation. The opportunity is to increase the competitiveness of the existing irrigation industry by focusing more on international trade and entrepreneurship development through collaborative relationships with universities, competitor companies, and water users and suppliers.



- *Agriculture Technology.* Current university-based research in precision agriculture and agricultural biotechnology can be leveraged to build a concentration of expertise that is exported worldwide. Already, California's universities are working on technologies that will transform the production of agriculture to use fewer resources, less land, and less chemicals and at the same time to be much more productive and competitive.
- *Agile Industrial Manufacturing.* The San Joaquin Valley's manufacturing base, devoted initially to supporting agriculture, has diversified over time to serve a range of specialized markets. The opportunity is to develop and connect this manufacturing base into an agile manufacturing cluster, serving diverse markets outside the region. Agile manufacturing is based on the ability to produce customized products quickly in an environment of change and uncertainty.
- *Advanced Logistics.* Logistics is an increasingly important source of strategic advantage for many industries, and the industry is growing at 20% annually in the United States. The Valley's current call centers, warehousing, and distribution competencies could evolve into Internet order fulfillment centers and specialty logistics services, driven by innovation in information technology. The San Joaquin Valley could become the West Coast's strategic nerve center for logistics innovations.

- *Smart Commerce and Customer Services.* The San Joaquin Valley can become the "I-800" capitol of the on-line world, providing sophisticated support services to the growing electronic-commerce industry. The growth of the Internet is transforming the way commerce takes place. The region can go well beyond traditional call centers to high-value, comprehensive "smart" customer services, integrating e-mail, fax, Web interactions, and voice services.

Evolving toward these innovation-based activities can bring sustained increases in standard of living to the San Joaquin Valley people, and national and international prominence to the region. In fact, a key finding of this report is that the San Joaquin Valley economy has the opportunity to produce a large number of middle-class, family-wage jobs. These jobs are precisely the kinds that are disappearing from the coastal metropolitan regions, with their increasingly "hourglass" distribution of occupations and wages.



Characteristics of San Joaquin Valley's Opportunity Area Clusters

INDUSTRY CLUSTERS	EMPLOYMENT 1998	CONCENTRATION 1998	AAGR EMPLOYMENT 1993-1998	AVERAGE WAGE 1998	ESTABLISHMENTS 1998	AAGR ESTABLISHMENTS 1993-1998
Flexible Food Manufacturing	41,426	5.2	1.0%	\$ 31,693	2,096	-1.7%
Agriculture Technology	39,898	21	5.8%	\$ 32,134	2,618	8.9%
Precision Irrigation	5,050	1.5	1.3%	\$ 26,756	265	-1.4%
Agile Industrial Manufacturing	20,101	.8	3.8%	\$ 31,578	864	0.2%
Advanced Logistics	32,350	1.1	3.5%	\$ 32,006	2,417	2.4%
Smart Commerce & Customer Services	5,361	.4	7.4%	\$ 57,518	350	7.9%
All Clusters	139,136	1.8	3.5%	\$ 32,871	8,345	2.9%
All Industries	842,968	1.0	2.0%	\$ 27,946	66,097	3.1%
Cluster Percent of Total	16.5%				12.6%	

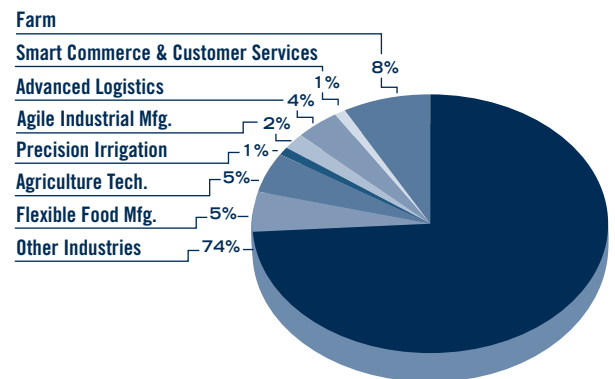
AAGR = Average Annual Growth Rate

Concentration = Share of cluster employment in region relative to that cluster's employment nationally

Source: Regional Financial Associates

Economic growth and sustained improvement in the standard of living for San Joaquin Valley residents will require that cluster industry employment make up a larger share of total San Joaquin Valley employment.

Distribution of Employment, San Joaquin Valley, 1998





Strategic Recommendations

The secret to building an innovative economy is in building an innovative community.

Significant regional initiative is necessary to transition the San Joaquin Valley to participate more fully in new economy activities.

Community, business, education, and other leaders must take deliberate action to leverage strengths, build assets, and change mind-sets.

The report makes seven Strategic Recommendations. These Strategic Recommendations represent the themes common to the more than 40 action initiatives that are proposed (which are described in the full report) to support the six specific opportunity areas. These Strategic Recommendations include:

- *Regional Leadership.* Develop “networks of responsables” in the region that will drive the testing, refining, promotion, and implementation of the vision. These “responsables” include people acting as stewards of the overall regional vision as well as of each particular opportunity area.
- *Cluster Networks.* Create intermediary institutions, personal relationships, and electronic networks that expedite collaborative partnerships among cluster companies, education institutions, and other organizations. By collaborating, the small- and medium-sized companies so predominant in the Valley can create the scale effects necessary to serve global markets and improve their efficiency and innovation.
- *Innovative Workforce.* From K-12 through community colleges and universities, develop a computer and information-technology literate workforce (technology implementers) and people capable of learning throughout their lifetimes. Increase collaboration between the education and training communities and cluster companies.
- *Technology Development Community.* Develop a community of applied research professionals in companies and universities that are tightly oriented to the cluster industries (technology innovators). Shape the basic research activities at University of California-Merced and the applied R&D activities at Fresno State to meet the needs of industry clusters.
- *Entrepreneurship.* Cultivate innovation economy entrepreneurs, and next-generation business leadership. Create the places, financial support and other resources, and the culture that encourage people, especially young talent, to recognize business opportunity and exploit it.



- *Regional Identity.* Shift mind-sets in and outside the region toward a positive vision of the future and the behavior change necessary to achieve it. Cultivate a regional identity that fits with both the region's traditional history and strong future promise and that overcomes misperceptions about limited opportunities. Perception matters for prosperity.

Examples of Required Mind-Set Shifts

- From *isolation* of companies in the region to *integration* of companies across the region
- From *low educational attainment* to *high educational aspirations*
- From serving *local markets* to serving *global markets*
- From land as *unlimited resource* to land as *limited resource*
- From quality of life as residual to quality of life as economic development requirement
- From *community leadership* to *regional leadership*
- From *attraction* of companies to home-grown *entrepreneurship*

- *Livability/Environment.* Attracting and retaining young talent and midlevel professionals is essential to achieving the vision. As an economic development tool, consciously create a high-quality living environment attractive to knowledge workers, including vital downtowns, protected open space and landscapes, preserving in some places the distinctive landmarks and physical character of the rural West.

The full report of THE ECONOMIC FUTURE OF THE SAN JOAQUIN VALLEY is available on-line at www.greatvalley.org/nvc/tech_clusters.html or from the Great Valley Center.



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