



**DONALD BREN SCHOOL OF ENVIRONMENTAL SCIENCE & MANAGEMENT**  
UNIVERSITY OF CALIFORNIA, SANTA BARBARA

## DEVELOPMENT OF A SUSTAINABLE COMMUNITY IN SANTA PAULA, CALIFORNIA

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### Background Information

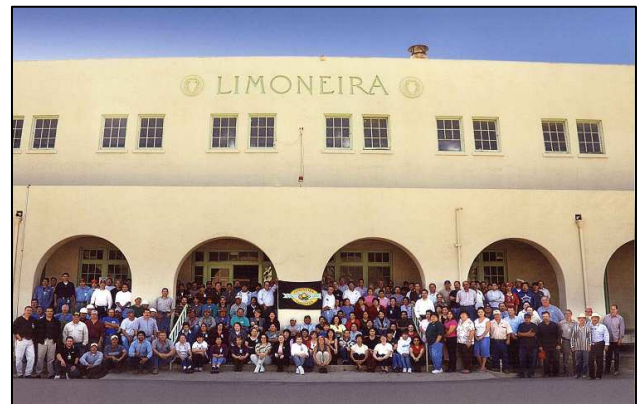
The Limoneira Company is planning to develop a 508-acre parcel of land directly to the east of the City of Santa Paula, California as a community with a mix of residential and non-residential uses. This proposed community, East Area 1, is designed to meet the growing need for housing and promote economic growth within the city. The availability of housing in Santa Paula is an ongoing problem that will worsen as the population continues to grow. The Southern California Association of Governments projects that the city needs to add more than 2,000 housing units by 2014 in order to meet demand [*Southern California Association of Governments*, 2007]. Santa Paula currently has the lowest median income of all the incorporated cities within Ventura County [*City of Santa Paula*, 2008]. East Area 1 is expected to boost the local economy by creating jobs and attracting affluence to the city.



Current aerial view (left) and approved layout (right) of East Area 1

Satisfying these needs for housing and economic growth in Santa Paula will require new land development. Santa Paula is mostly agricultural land, and there is simply not enough space to meet the projected housing demand by building new developments in the unoccupied spaces within the previously developed parts of the city. At the same time, Santa Paula is only willing to accept development that preserves the city's character and agricultural heritage. As an agribusiness, Limoneira may seem to be an unlikely candidate to be developing real estate, but they have been an integral part of Santa Paula since the company's founding in 1893. Limoneira feels

they are in the best position to build a community that takes into account the city's history, culture, and needs [*The Limoneira Company*, 2008b]. Moreover, the company has been involved in both residential and commercial real estate development projects in Santa Paula, as well as other parts of California and Arizona, since the early 1900s [*The Limoneira Company*, 2008a].



Limoneira staff at company headquarters in Santa Paula

Instead of taking a short-term view, focusing only on satisfying housing needs inexpensively and generating property tax revenue, Limoneira sees the long-term viability of East Area 1 as an integral part of its development plan. As such, they want to incorporate sustainability into the process of designing and developing this community.

### Our Role and Objectives

Because land development is not their primary business, Limoneira is working with a team of design professionals to plan the community, create its specific layout, and carry out the actual development of the community. While Limoneira and its team of consultants and engineers have incorporated sustainability into the planning process, producing a conceptual vision of a mixed-use community with pedestrian-friendly neighborhoods and districts, they still required guidance on how to implement specific strategies to make East Area 1 a sustainable development. As a result, Limoneira brought our group into the design process as sustainability experts.



We worked in conjunction with the rest of the design team to advise Limoneira on how to ensure the long-term sustainability of the community.

Our objectives for this project are:

- Define what sustainable development means in the context of East Area 1.
- Identify the individual areas, or sectors, of a community that must be addressed for that community to be sustainable.
- Evaluate the environmental, economic, and social impacts of a baseline scenario in which the community is built without sustainability improvements.
- Determine strategies and actions for improving sustainability over the baseline.
- Recommend a set of specific strategies and actions that will make East Area 1 a sustainable community development.

### **Approach and Methodology**

Considering Limoneira’s goal to make East Area 1 a sustainable community, we first have to define the concept of “sustainable development” for this project. The foundation of our definition is from the Brundtland Commission, which states that present needs are met without compromising the ability of future generations to meet their needs [United Nations: *World Commission on Environment and Development*, 1987]. Because of the unique conditions of East Area 1, we did not pursue an established “green” certification, which can ignore key aspects of local circumstances.

We take a holistic view of sustainable development which considers the environmental, economic, and social impacts of the community. To evaluate the issues of sustainability, we divide our analysis into six interconnected sectors: Building Materials, Energy, Landscape Management, Solid Waste, Transportation, and Water. We choose these six sectors because they provide a comprehensive view of sustainable community development. Given the fact that the community’s Specific Plan is largely conceptual in nature and taking into account our diverse audience, which includes Limoneira, developers, and future East Area 1 residents, the most valuable deliverable we could provide is a set of recommendations clearly stating what actions to take to integrate sustainable practices into East Area 1. Because an index of

sustainability standardized across our sectors is not feasible, we are not setting a minimum quantifiable threshold for sustainability. Instead, we set targets and goals based on the particular sector or specific recommendation.

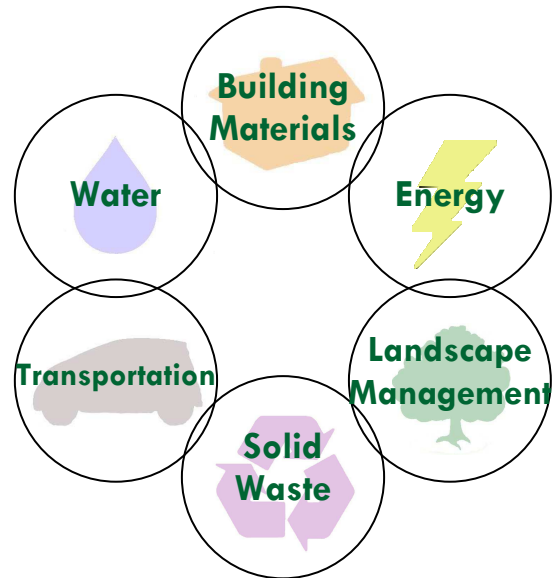


Diagram showing the dynamic relationship between our six sectors

Our recommendations address the construction of the community, as well as how the community will function once people live and work in it. The sustainability of East Area 1 is inextricably linked to its future maintenance and people’s individual and community behavior. Our recommendations need to be actionable and flexible. Construction will likely occur over ten years, so we must consider future legislation and emerging technology. Although it is important for our recommendations to be innovative, they also have to be economically practical. We want East Area 1 to be a progressive community and a role model for Ventura County, but we have to be mindful that construction will begin in only a few years, and developers need to be able to sell these homes.

To evaluate potential recommendations, we used several methodologies. We went on site visits to East Area 1 and Santa Paula to learn about the local conditions and better understand Limoneira’s relationship with Santa Paula. We consulted with experts to gain their perspectives on relevant issues of sustainability. We also conducted an extensive literature review. Finally, we used models and calculations to support our recommendations for the Energy, Transportation, and Water sectors.



## **Recommendations**

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We make 19 recommendations in our six sectors stating how East Area 1 can integrate measures to ensure that it follows the principles of sustainable development.

Additionally, we make three recommendations about the ongoing process of maintaining East Area 1 as a sustainable community. These recommendations do not comprise their own sector, but are instead connected to all six sectors.

### **Building Materials**

- Use building materials that eliminate or minimize occupants' exposure to indoor chemical and microbial contaminants.
- Select building products using an environmental life-cycle assessment approach.

### **Energy**

- Integrate energy efficiency measures into all buildings so that new construction will exceed Title 24 standards by at least 20 percent.
- Integrate renewable energy technology into buildings, including photovoltaic cells, solar hot water heaters, and geothermal heat pumps.
- Minimize barriers to retrofitting buildings for energy efficiency and renewable energy technology through green leases and energy improvement mortgages.
- Participate in utility and government programs to receive financial incentives and customized recommendations on how to improve the energy performance of buildings.

### **Landscape Management**

- Promote the agricultural heritage of East Area 1.
- Use organic landscaping methods in the design and maintenance of the landscape and agricultural preserves.
- Reduce outdoor light pollution with efficient and effective use of light fixture placement and technology, light shielding, and directed light.

### **Solid Waste**

- Maximize the quantity of solid waste which gets recycled or reused.
- Mandate all companies doing construction in East Area 1 to institute a work site program to divert a minimum of 90 percent of construction and demolition waste from landfills.

### **Transportation**

- Discourage the use of automobiles by promoting walking and bicycling and restricting parking.
- Facilitate the use of public transit by providing shuttle service to existing transit services and offering residents monthly transit benefits.
- Establish a carpool program for residents and commuters.
- Introduce a car-sharing program to minimize the need of residents to own a car.

### **Water**

- Maximize pervious surfaces to manage the volume, rate, and pollutant discharge of stormwater runoff, and require a plan to manage stormwater during construction.
- Increase indoor water use efficiency by installing best available technology for appliances and fixtures, and construct non-residential buildings to use recycled water for non-potable uses.
- Increase outdoor water use efficiency by using irrigation technology devices and xeriscape principles, and irrigating public landscapes with recycled water.
- Install automatic water meters and utility monitoring systems in all buildings. Sub-meter all multi-family units and non-residential buildings.

### **Operations and Maintenance**

- Use Covenants, Conditions, and Restrictions (CC&Rs) with sustainability provisions.
- Create a community website.
- Host a series of public workshops focused on living sustainably.

## Our Vision

Our vision for East Area 1 focuses on the people who will live in this community. At the forefront of our vision is a high quality of life that includes enhancing human and environmental health. We want East Area 1 residents and workers to realize the full benefits of this sustainable development through their actions and behavior choices. We imagine a place where people gather in the parks and open spaces, which are beautiful and healthy due to the organic methods used to maintain them. People will be able to conserve resources by using efficient appliances and fixtures in their homes and workplaces. By setting up carpools using the community website, people can reduce their carbon footprint and save on gas money.



Artist rendering of a mixed-use building along Hallock Drive

Because sustainability is dependent on people's behavior, education and outreach are critical. A future project should evaluate how rules are made and enforced in community developments, thereby providing valuable insight on governance structures, such as the Covenants, Conditions and Restrictions (CC&Rs) and homeowners associations. Furthermore, an assessment should be conducted after the first construction phase to determine the effectiveness of the implemented recommendations.

Although Limoneira has been involved in developing neighborhoods since its inception, this development is its largest effort thus far. This endeavor is also the first of its kind on this size of scale for both Santa Paula

and Ventura County. By implementing our set of innovative recommendations, East Area 1 can set an example of how future urban developments in the County can transition from conventional practices, such as suburban sprawl, to a paradigm of sustainability.



Artist rendering of the Central Park between the Haun Creek Neighborhood and the Civic District

## References

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