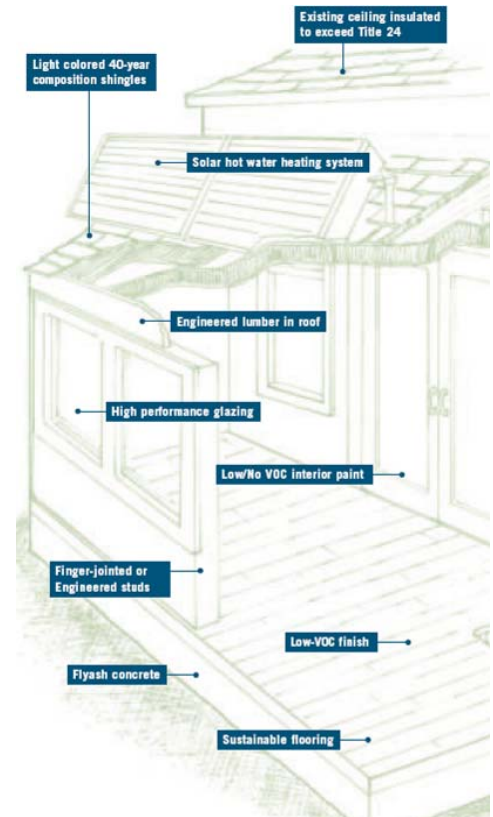


Sustainable Design Plan

4



Contents

- 4.1 Sustainable Approach to Design and Development
 - 4.1.1 Understanding Sustainability
 - 4.1.2 Response to Context and Location
- 4.2 Energy
 - 4.2.1 Energy and Transportation
 - 4.2.2 Local Energy Production and Conservation
- 4.3 Water
- 4.4 Green Building



4

Sustainable Design Plan



Sustainability is a core principle of the Mill Site Specific Plan. The Specific Plan includes policies and development standards meant to support the creation of a healthy and lasting place to live, work, and play. This chapter addresses energy, water, and green building. The remaining topics related to sustainability are addressed throughout the Specific Plan as described below.

4.1 Sustainable Approach to Design and Development

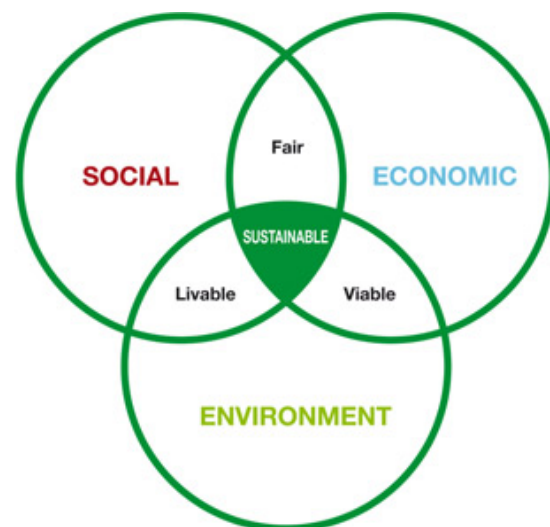
As a sustainable community, Fort Bragg seeks to achieve the following goals:

- Facilitate environmental, social, and economic well-being for all Fort Bragg residents;
- Look to the past, and honor and use the time-tested strategies of simpler, less resource-intensive ways of living;
- Look to the future, and anticipate and minimize potential stresses on our community—be they changing resource supplies, changing climate, or changing economic conditions;
- Look to the natural setting of our community, and protect and emulate the natural processes occurring in our community; and
- Bring people out of their homes and cars, encouraging them to be active, healthy, and connected to their environment and each other.

4.1.1 UNDERSTANDING SUSTAINABILITY

The United Nations World Commission on Environment defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” The U.S. Environmental Protection Agency uses a similar definition of sustainability: “social and environmental practices that protect and enhance the human and natural resources needed by future generations to enjoy a quality of life equal to or greater than our own.”

Sustainability includes economic, environmental, and social components. A sustainable community recognizes that environmental protection at the expense of economic stability is



not viable. The sustainable core is economically fair, environmentally viable, and socially livable.

Accordingly, development in the Plan Area will enhance the economic vitality of the community. Likewise, the Plan Area’s proposed balance of land uses and transportation network will encourage people to live, work, and play locally, leading to a vibrant, diverse, and resilient local economy. Additionally, the land use allocation reserves space for future industry and employment opportunities that may require larger sites not available elsewhere in Fort Bragg (see Chapter 2, Land Use Development Standards).

4.1.2 RESPONSE TO CONTEXT AND LOCATION

The Specific Plan responds to issues of local importance, such as open space, habitat protection, visual resources, jobs and economic growth, water use, and stormwater management; and regional issues, such as energy use and climate change. These issues are addressed as follows in the Specific Plan.

Open space and habitat protection are addressed in Chapter 5, as well as in the Coastal Land Use and Development Code (Coastal LUDC) as it applies to the Plan Area. The Specific Plan takes full advantage of the site’s coastal location by providing a continuous network of habitat, views, and pleasant community aesthetics and experiences. Open spaces, many of which provide habitat protection, have been incorporated into the Land Use Plan (see Chapters 2 and 5) to connect neighborhoods and facilities to the coast and nature while improving habitat and restoring natural systems.



Visual resources are addressed in Chapters 3 and 5, as well as in the Citywide Design Guidelines. The visual resources of the site are preserved in part through the open space components of Chapter 5. The implementation of the Citywide Design Guidelines, along with the streetscape design standards provided in Chapter 3 of the Specific Plan, will ensure high-quality design of both public and private spaces.

Jobs and economic growth are provided for in Chapter 2, as the Specific Plan will rezone 76 acres of the Plan Area for job-generating uses. At buildout, the Plan Area will house businesses that will provide approximately 1,800 new jobs in the community.

Stormwater management is addressed in Chapter 3, which describes state-of-the-art Low Impact Development (LID) techniques that will be incorporated into all public rights of way. The Coastal Land Use and Development Code regulates stormwater management for private projects in the Plan Area.

Energy and water use and the environmental impacts of development are addressed in this chapter, below.

4.2 Energy



The Specific Plan recognizes the importance of *Solar roof on a residence.* energy conservation and production at the local level and is committed to creating a model community for energy conservation and local sustainable energy production. The Specific Plan's intent for energy is to:

- Decrease the total energy used by the Plan Area relative to baseline estimated use;
- Minimize fossil fuel-based transportation and energy generation;
- Increase on-site distributed energy generation to promote energy independence;
- Advance the market for renewable energy sources; and
- Optimize savings of both energy and water.

The Specific Plan addresses energy use through policies that decrease demand in buildings, infrastructure, and transportation.

4.2.1 ENERGY AND TRANSPORTATION

The transportation system planned for the Plan Area consists of facilities for vehicles, pedestrians, and bicycles—a truly multi-modal system that will allow people to live without a car if they choose. Chapter 3 includes policies to ensure a multi-modal transportation system, which will reduce energy use and greenhouse gas emissions.

4.2.2 LOCAL ENERGY PRODUCTION AND CONSERVATION

On-site renewable energy generation can dramatically increase energy efficiency and decrease dependence on fossil fuel-based or nuclear energy generation and long-distance transmission. Active technologies include on-site distributed generation and cogeneration, wherein energy is generated by systems such as fuel cells, micro turbines, gas turbines, biomass power generation, and waste-to-energy conversion.

On-site energy generation is another opportunity for Fort Bragg, as natural conditions favor a number of different strategies for renewable energy generation. Solar energy generation has a long track record of pioneering success in Northern California and is increasingly efficient and affordable. In addition, typically moderate and steady winds off of the ocean provide good conditions for wind energy generation. Passive solar design strategies¹ include siting and design of buildings to take advantage of natural light and heat from the sun for lighting and space and water heating and cooling.

Local Energy Policies:

Policy SD-1. Passive Solar Design Strategies. Building and site design shall use passive solar design strategies for space and water heating and lighting to reduce energy demand, to the extent feasible.

Policy SD-2. Use of Local and Renewable Energy. Buildings and infrastructure that create and/or use locally and renewably generated energy are encouraged.

Policy SD-3. Leadership in Energy and Environmental Design (LEED) Credits. New neighborhood development of more than 10,000 square feet or 5 acres shall qualify for at least five credits from the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) rating system using the following credit categories (or their equivalents): building energy efficiency, solar orientation, on-site renewable energy sources, district heating and cooling, and/or infrastructure energy efficiency.

Policy SD-4. Reducing Energy Demand. Building systems shall include active strategies to reduce energy demand, such as the use of high-performance heating, ventilation, and air conditioning (HVAC) systems, glazing, and hot water systems.

Policy SD-5. Net Zero Energy Homes. Construction of net zero energy homes—homes that produce as much energy through photovoltaic panels and solar hot water systems as they consume—are encouraged.

Policy SD-6. Photovoltaic and Wind Energy Systems. Because of the significant solar and wind resources available in the Plan Area, photovoltaic and wind energy systems are encouraged. To preserve scenic views, smaller wind energy infrastructure is preferred.

Policy SD-7. District Heating. District heating (i.e., heat generated in a central location) is encouraged. District heating is preferred for large development projects of more than 15 acres or 20,000 square feet.

4.3 Water

The Specific Plan features a systems-based approach to minimize consumption of potable water. Reducing water use can also save energy, since water and wastewater treatment and pumping require significant amounts of energy. The Specific Plan’s intent for water conservation is to:

- Minimize water demand indoors and out;
- Use potable water for potable purposes; and
- Encourage reuse of water on-site.

Methods and systems for the careful and judicious use of potable water, graywater, and rainwater are detailed below.



A system that captures rainwater.

Water Conservation Policies:

Policy SD-8. Design for Low Water Use. Development projects shall be designed and constructed to achieve the following maximum water demand by type of use:

- 210 gallons per day per residential unit;
- 70 gallons per day per hotel room;
- 0.11 gallon per day per square foot of industrial or commercial development, except for restaurants, bars, and office uses;
- 4 gallons per day per square foot of restaurants and bars; and
- 0.35 gallon per day per square foot of office uses.

Policy SD-9. No Potable Water Use for Landscape Irrigation. Development projects in the Plan Area shall not use potable water for landscape irrigation. Landscape irrigation can be provided through rainwater capture or use of graywater systems, or landscaping that does not require irrigation can be used. Graywater systems shall meet all health and safety standards. Potable water use is permitted for irrigation of vegetable gardens and fruit trees.

Policy SD-10. Rainwater Capture. Rainwater cisterns shall be sized and located throughout the Plan Area in order to encourage active rainwater collection, storage, and use. The installation of cisterns is encouraged to capture rainwater from roofs for all water needs and for flood control during heavy storms. Cisterns may be located above or below ground.

Policy SD-11. Water Conservation Education. Business owners shall incorporate educational programs that promote water conservation habits and practices in all hotel, restaurant, and residential development.

4.4 Green Building

Green Building consists of utilizing building design, construction techniques, and building materials intended to improve building operating costs and reduce the negative impacts of buildings on the environment and its occupants. Green building techniques are applied to the treatment of the building site, to improve water efficiency and energy efficiency, in the selection of materials and resources, and to improve indoor environmental quality.

In 2010, the California Building Standards Commission unanimously adopted a mandatory Green Building Standards Code (CALGREEN) requiring all new buildings in the state to be more energy-efficient and environmentally responsible. These regulations include a mix of prescriptive and performance-based standards to achieve major reductions in greenhouse gas emissions, energy consumption, and water use to create a greener California.

Construction practices, building technologies, and best practices are likely to evolve, and new practices and technologies are likely to be developed during the life of the Specific Plan. Consequently, the Specific Plan focuses on performance-based requirements for achieving sustainability.

In order to capture a broad spectrum of sustainable design practices, the Specific Plan uses the US Green Building Council's LEED® for Neighborhood Development (LEED-ND) rating system as a benchmark in setting various design criteria and performance standards. LEED-ND is a voluntary, point-based rating system that provides detailed design criteria in three major areas of neighborhood-scale design: Smart Location and Linkages, Neighborhood Pattern and Design, and Green Infrastructure and Buildings. The Northern and Central Districts of the Plan Area are designed to meet the LEED-ND prerequisites and to be eligible for conditional approval (Stage 1) as a LEED for Neighborhood Development Plan, with the expectation of being eligible for pre-certification (Stage 2) following adoption of the Specific Plan by the City of Fort Bragg.

In addition to neighborhood-scale certification, LEED for New Construction (LEED-NC), LEED for Core and Shell (LEED-CS), and LEED for Homes (LEED-H), as well as the Energy Star Homes and Green Point Rated programs, evaluate the sustainability of individual buildings. To meet prerequisites for LEED-ND, at least one building in the Plan Area must be either built or redeveloped in accordance with a building-level rating system that includes independent, third-party verification.

Green Building Policies:

Policy SD-12. Building Reuse. Where existing buildings in the Plan Area are structurally sound and reuse is economically feasible, reuse of buildings in whole or part is preferred.

Policy SD-13. Green Building Certification in Northern and Central Districts. Development in the Northern and Central Districts of the Plan Area shall achieve Leadership in Energy and Environmental Design for New Construction (LEED-NC), Build-it-Green, or comparable certification.

Policy SD-14. LEED Certification. All new development projects of more than 5,000 square feet shall achieve Leadership in Energy and Environmental Design for New Construction (LEED-NC) certification. All new development projects of more than 10,000 square feet shall achieve the LEED-NC silver rating.

Policy SD-15. Reducing Water Use. All new development projects shall achieve at least 80 percent of the possible credits in the water conservation component of Leadership in Energy and Environmental Design for New Construction (LEED-NC).

Policy SD-16. Preferred Green Techniques. All green building techniques are encouraged, with preference given to techniques that address local issues, such as use of locally produced natural materials, water and energy conservation measures, and techniques that respond appropriately to Fort Bragg's cool, rainy environment, such as passive solar design and low impact development (LID) strategies.

Policy SD-17. Recycling. All development in the Plan Area shall provide a centralized drop-off location or locations for all recyclables, including compostable materials.

Policy SD-18. Preserving High-Quality Native Trees. Applicants for any development proposed for the eastern edge of the Plan Area between Chestnut and Cypress Streets, which is heavily wooded, shall hire an arborist certified by the International Society of Arboriculture to conduct a survey of trees to identify those that are (1) in good or excellent condition, (2) heritage or champion trees of special importance in the area, and (3) larger than 6 inches in diameter at chest height. Development in the Plan Area shall endeavor to preserve many, though not necessarily all trees that meet these criteria.