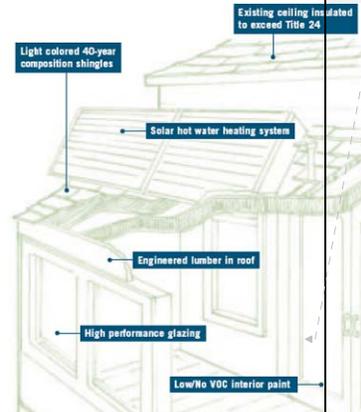


Sustainability Design Plan

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Chapter 4 Sustainable Design Plan



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Sustainability Design Plan

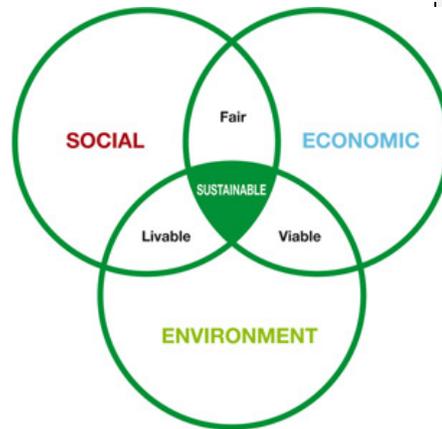


Sustainability is a core principle of the Mill Site ~~Specific Plan~~ Reuse Plan. The ~~Specific Plan~~ Reuse Plan includes policies and development standards meant to support the creation of a healthy and lasting place to live, work, and play. This chapter addresses energy, water, and green building.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

4.1.24.1.1 RESPONSE TO CONTEXT AND LOCATION

The ~~Specific Plan~~ Reuse 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 Reuse Plan.



Solar roof on a residence.



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 Reuse 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 Reuse 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~~ **Reuse 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~~ **Reuse Plan** recognizes the importance of 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~~ **Reuse 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; **and**
- Advance the market for renewable energy sources; and
- Optimize savings of both energy and water.

The ~~Specific Plan~~ **Reuse 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.

Comment [MJ1]: This requirement no longer makes sense as the baseline energy use on the mill site is effectively zero now.



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 strategies 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. Minimize Energy Use. Reduce Energy Demand with a Goal of Net Zero Energy Buildings. All new construction shall minimize energy use. Net zero buildings and homes are encouraged. These homes produce as much energy (through conservation, photovoltaic panels, solar hot water, and wind, geothermal) as they consume. The following strategies are encouraged to achieve this goal:

- **Modify the CLUDC to include planning incentives for projects that achieve net zero energy use.** Incentives could include reduction in parking requirements, additional lot coverage, reduction in setbacks, etc.
- **Use of Local and Renewable Energy.** Buildings and infrastructure that create and/or use locally and renewably generated energy are encouraged.
- ~~Leadership in Energy and Environmental Design (LEED). Modify the Land Use and Development Code to require that new development of more than 10,000 square feet or five acres qualify for at least 50 percent of the credits from the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) in the Energy and Atmosphere category of LEED.~~
- **Reducing Energy Demand.** Building systems that 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 are encouraged.

Comment [MJ2]: This policy was added after the process with GP at the request of the 2012 City Council. The Council at that time debated whether or not net zero energy use should be required of all development and decided that this would put a significant burden on new development especially manufacturing firms that use a lot of energy.

Comment [MJ3]: Staff recommends eliminating the requirement that new project on the site be LEED certified. The State's Green Building Code already requires energy efficiency to achieve LEED Silver. An additional requirement may not be necessary.

Comment [MJ4]: Consider deleting this policy as well as most of these requirements are already included in the State Green Building Code.

- **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.
- **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 Reuse 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 Reuse 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.

Water Conservation Policies:

~~Policy SD-2.—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.~~



A system that captures rainwater.

Comment [MJ5]: This is very specific and prescriptive and was based on achieving specific water use targets for a much larger development. Staff recommends a performance based approach instead. See Policy SD-4, as recommended by the Planning Commission



Policy SD-3. Policy SD-3. Design for Low Water Use. Development projects shall be designed and constructed to minimize water use through the installation of best available water conservation technology ~~and fixtures and practices.~~

Policy SD-4. 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 only for irrigation of vegetable gardens and fruit trees.

Policy SD-5. Rainwater Capture. Rainwater cisterns ~~may 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-6. Water Conservation Education. Business owners shall incorporate educational programs that promote water conservation habits and practices in all hotel, restaurant, and residential development.~~

Policy SD-5.

Comment [MJ6]: It may not be practical or desirable to install rainwater systems everywhere, as they may not be easy to install where there is very little soil above the bed rock making burying the cisterns impractical and where preserving views is a higher priority.

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Comment [MJ7]: The Planning Commission recommends the removal of this policy as the water conservation message is fairly ubiquitous now.

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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. All projects on the Mill Site will have to conform with the CALGREEN Standard.

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~~

~~PlanReuse Plan~~. Consequently, the ~~Specific PlanReuse 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-7. 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-8. 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-9. Policy SD-6. LEED Certification for Large Projects.** 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 Gold-NC silver rating.~~

~~**Policy SD-10. 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-11. Policy SD-7. 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~~

Comment [MJ8]: This standard is well understood and does not require a description which will quickly become outdated.

Comment [MJ9]: Planning Commission recommends deleting this as there are virtually no buildings left in the Plan Area.

Comment [MJ10]: This may not be necessary given the level of green building required by California's Green Building Code. Planning Commission concurs.

Comment [MJ11]: The new CalGreen code requires higher levels of sustainability than LEED Certification. Planning Commission concurs. If you want to retain this policy, staff recommends a higher level of certification.

Comment [MJ12]: See comment above



techniques that respond appropriately to Fort Bragg's cool, rainy environment, such as passive solar design and low impact development (LID) strategies.

~~Policy SD-12.~~ **Policy SD-8. Recycling.** All development in the Plan Area shall provide a centralized ~~drop-off~~ location ~~or locations~~ for all recyclables, including compostable materials.

~~Policy SD-13. 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.~~

Comment [MJ13]: Appears to require trash collection from off-site waste producers, which would be inappropriate. Planning Commission Concurs

Comment [MJ14]: No longer necessary as this area will be rezoned as open space per City Council & Planning Commission direction.