8.0 SUSTAINABILITY & CLIMATE CHANGE PLAN

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8.1 Overview

Interest in sustainable development has been growing throughout the world. This concept integrates economic development, community livability and ecology. Promoting development without compromising the ability of future generations to meet their needs has become more goal for many segments of society. Many public and private sector entities have re-evaluated their plans to address long-term sustainability.

The threats from climate change and its severe consequences have never been so evident. The Intergovernmental Panel on Climate Change (IPCC), an international group of scientists and representatives of 113 governments in a statement released on February 2, 2007, concludes "The widespread warming of the atmosphere and ocean, together with ice-mass loss, support the conclusion that it is extremely unlikely that global climate change of the past 50 years can be explained without external forcing, and very likely that it is not due to known natural causes alone."

California is leading the way with legislation in response to climate change. In the fall of 2006, Governor Schwarzenegger signed AB32, the global warming bill, into law. AB32 requires achievement by 2020 of a statewide greenhouse gas emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions. Subsequent state legislation and executive orders, such as SB375, SB1493, and SB1078, reinforced California's determination and commitment to sustainability.

Along with other California cities, the City of Fairfield has been demonstrating its leadership and commitment to sustainability in many ways, from the embracing green building feature in City Hall design to the recent City of Fairfield Sustainability Initiative 2009. Fairfield also has a strong planning and regulatory foundation for a sustainable development program.

What is a Sustainable Community?

FTSSP interprets "sustainable community" to mean a community that is designed as a "whole" to foster health and vitality by connecting residents and visitors to the land and providing an enjoyable place to live, work, and play. A sustainable community accomplishes these goals without wasting natural resources or compromising the ability of future generations to meet their needs and enjoy an equal or higher quality of life.

This trend underscores the significance of FTSSP's commitment to sustainability by incorporating a thoughtful sustainable development program. The FTSSP is planned with the future in mind, embracing sustainable development while minimizing impacts on climate change. The sustainability program acknowledges costs and focuses on optimizing the "triple bottom-line" of economics, environment, and society. The FTSSP's sustainability program recommends measures that result in environmental, societal and economic benefits.

8.2 Vision and Guiding Principles

The overall sustainability vision for the FTSSP development seeks:

To create a community that balances human and natural resources while optimizing long term ecological, social and economic health.

FTSSP includes a comprehensive sustainability program in support of the proposed development, shaped by the following guiding principles:

- Building upon transit oriented development with proper density and mix of uses
- Promoting multi-modal transit connectivity
- The preservation of key habitat areas and creation of a robust open space system
- Optimizing value of the triple bottom-line to enhance long-term ecological, social and economic health
- Utilizing high performance design technologies to achieve cost effective energy use, water use, and clean air

8.3 Sustainable Low Carbon Community

Implementation of the FTSSP would generate CO_2 emissions from new residential, commercial, recreational, and public facility land uses. Greenhouse gas emissions from the Project would specifically arise from sources such as motor vehicles, natural gas consumption, solid waste handling/treatment, and electricity uses. The Bay Area Air Quality Management District (BAAQMD) has established the Thresholds of Significance for operational-related GHG emissions:

For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy; or annual emissions less than 1,100 metric tons per year (MT/yr) of CO_2e; or 4.6 MT CO2e/SP/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.

This emission target and level of sustainability is achievable through the following measures/strategies, most of which have been incorporated in the preferred alternative or are required by newly published state/federal mandates. These measures address various sustainability and emission factors, including building energy, water, transportation, and public realm energy.

8.3.1 Energy

Since building energy constitutes nearly 40 percent of the national carbon footprint, strategies on curbing building energy use is an integral part of the solution. This approach is a low-cost, high-return investment strategy to reduce energy consumption and associated emissions. In response to AB32, the 2008 Title 24 was adopted to provide California with an adequate, reasonably-priced, and environmentally-sound building energy use profile. With the approval of the most stringent, eco-friendly state-wide building code in the United States, the new building code standards "CALGreen" took effect in January 2011. CALGreen lays out specific constraints for newly constructed buildings and raises the bar of building energy performance for all future development.

The City will adopt the mandatory provisions of CALGreen in the local building code, therefore, requiring future FTSSP buildings comply with CALGreen standards. It is anticipated that new structures built in compliance with the green building code will achieve at least a 15 percent reduction in energy usage when compared to the State's existing energy efficiency building code standards.

Public realm energy is commonly known as the energy used in public space between private buildings, including all streets, alleys, sidewalks, and parks. Public realm energy conservation measures deal mainly with lighting measures for public realm. Although it only represents a relatively small percentage of the total Project carbon footprint, it is one of the most cost-effective ways to reduce energy use and energy cost.

8.3.2 Water

In California, water related energy use includes conveyance, storage, treatment, distribution, wastewater collection, treatment, and discharge, which are components of the water use cycle. Water related energy use and emissions are termed "water embedded energy" since the energy used in moving or treating water is considered to be "embedded" in the value of the water. Even though water related emissions represent a relatively small percentage compared to building energy and transportation emissions, they contribute to the overall objective of reducing the overall water usage of the Project.

The 2010 CALGreen standard calls for the reduction of indoor potable water by at least 20 percent from current code standards through the use of low and ultra low flow fixtures. It also requires buildings to have more efficient controllers for exterior irrigation system.

8.3.3 Transportation

Transportation accounts for nearly a third of our nation's contribution to GHG emissions and has been rapidly growing in the past twenty years. If projections hold, this share will rise to 36 percent by 2020. Effective measures considered to reduce transportation emissions include reducing vehicle travel needs, increased vehicle fuel efficiency, investment in low-carbon alternative fuels, and alternative transportation modes.

The ideal location of FTSSP has provided the Project with advantages from a sustainable transportation perspective. The potential passenger train station provides a transit-oriented development (TOD) setting. The preferred alternative has incorporated and optimized this TOD opportunity by creating a more compact neighborhood center with mixed community services within walking distance of the station. In addition, rail spurs that serve a great portion of the future industrial area provide opportunities for diverting a significant amount of truck traffic to rail, thus reducing vehicle miles travelled (VMT). The FTSSP shall prioritize attractive, rail-served industrial to be located in those rail-served parcels.

Further, the proposed Project would provide a well-connected pedestrian trail system, which would link most community facilities and primary destinations, and should feature treated intersections that calm traffic and create pedestrian activity. The design of the trail system is aimed to entice more pedestrian and bike traffic while providing future community residents with an attractive alternative route for daily shopping, service, and recreational trips. It is estimated that a 1 to 2 percent of VMT reduction would be expected.

The California Low Carbon Fuel Standard (CALCFS) is the result of the Executive Order signed by Governor Schwarzenegger. The CALCFS requires producers of gasoline and diesel fuels to reduce the "carbon intensity" of fuels sold in California. By 2020, the carbon intensity will be reduced by 10 percent from the 2010 level. Based on the current fleet mix of the City of Fairfield and County of Solano, it is estimated that the VMT related emissions will be reduced by 15 to 20 percent compared to a Business-as-Usual scenario without such standards.

8.3.4 Waste

Reducing waste leads to a decrease of greenhouse gas emissions that normally result from landfill gas and the manufacturing and transporting of products and waste. The modern solid waste management practice recommends a hierarchy of approaches: reduce, reuse, and recycle.

Many detailed strategies and measures have been identified through various research and best practices. Most, however, fall beyond the control of the current FTSSP provision. Future construction waste management and waste collection in the public realm is the primary focus of FTSSP today. The CALGreen code mandates that all new buildings must divert waste to recycling or salvage a minimum of 50 percent of nonhazardous construction waste and demolition debris generated onsite. This does not represent a significant change from the current standard since the voluntary tier one standard of a 65 percent diversion rate is considered to be achievable in most areas of California. Future construction management in the FTSSP area should aim to achieve this 65 percent diversion target. The development shall also provide proper recycling facilities, such as trash cans, for recyclable and non-recyclables.

8.3.5 Eco-Services and Open Space

The Project is in essence a conservation development with a large portion of the land being placed in permanent conservation and preservation.

8.3.6 Environment and Public Health

Preventing harmful pollutants that are found in the air, water, natural environment, and food supply is an important part of becoming a more sustainable community. Clean air, safe groundwater, and a healthy ecosystem helps to maintain the health of the community and its residents. Encouraging proactive responsibility in preserving healthy streams, wilderness areas, diversity of plant and animal populations, soils, and clean air for future generations is imperative for the FTSSP.

8.3.7 Green Building

The mandated CALGreen code has set a standard of quality for new buildings' sustainable performance. CALGreen Tier 1 and CALGreen Tier 2 municipalities are required to adopt the mandatory provisions but may also choose to incorporate additional voluntary measures as part of local building standards. The voluntary measures are more stringent than the regular code.

For example, CALGreen Tier 2 requires a 30 percent building energy reduction from the current standard. Should the City choose to adopt Tier 1 or Tier 2 standards, the building related emissions would be further reduced. In addition to CALGreen, other green building programs should be considered for implementation, where feasible. Built-it-Green, established in 2003, is a well-known green building program tested in California. USGBC and its LEED certification system

is the best known green building program, with a specific rating system tailored for residential homes, schools, and other non-residential building types. Some municipalities in California have formulated their own green building program as well. Should the City establish a green building program, it should be included in the implementation of FTSSP.