



# *Waterford Vision 2025 General Plan*

## **Chapter 9 Sustainable Development**

### ***2025 Sustainable Growth & Development***

***Vision:*** A community that recognizes the value of its environmental setting and promotes planning and development practices that assure the long-term livability of the community with respect to air, water, energy and other critical environmental resources.

### **9.1 BACKGROUND & SETTING**

#### **9.1.1 Introduction & Intent**

This chapter of the *Waterford Vision 2025 General Plan* addresses the environmental, natural and cultural resources of the City and proposes policies to minimize adverse effects resulting from growth and development.

The intent of this chapter is two-fold. The primary purpose is to promote *sustainable growth* in the City of Waterford. In the context of the *Waterford Vision 2025 General Plan*, “*sustainable*” means meeting the needs of the present without compromising the ability of future generations to meet their needs.

In practical terms, *sustainable growth* in the City of Waterford means accommodating growth and development without unnecessarily:

- x Consuming our valuable and limited agricultural soils,
- x Contaminating or over-taxing our water supplies,
- x Destroying or diminishing the value of important wildlife habitat,
- x Reducing our air quality to a point where our quality of life is threatened,
- x Consuming limited non-renewable energy resources, or
- x Destroying our cultural and historic resources.

As more people move to the City of Waterford the more planning and development policy needs to assure the sustainable use of our environment.

A second purpose of this chapter is closely related to concerns over *sustainable growth*. This chapter is intended to minimize duplication and overlap of the environmental regulatory system in the City.

Numerous federal, state and regional agencies have recognized the need to protect soil, water, wildlife, air, energy, and cultural resources. These agencies have adopted rules, regulations and standards which are routinely applied through the City’s development review processes.

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This complex multi-agency regulatory system can create unnecessary time delays in processing development permits. Sometimes agencies propose regulations which are in conflict with other agency regulations. As an example, State wildlife conservation efforts often conflict with local flood control agency efforts to remove brush from clogged streams and water-courses.

The lack of adequate locally derived environmental and resource protection standards pose problems for San Joaquin Valley cities like Waterford. When local standards are not in place, federal and state agencies attempt to fill the void with standards that are general in nature and development project driven. These standards frequently do not fit the circumstances of an individual project, and often varies between similar projects.

As a result, local jurisdictions face the prospect of having to impose project conditions which lack consistency and may have little long-term beneficial impact. This typically results in inconsistent standards being proposed at the federal, state or regional level. This lack of consistency creates confusion for both community investors and the public at-large.

In a similar manner, lack of local environmental policy, based on good scientific information, can create confusion during public review processes. Lack of clear local environmental policy can result in public debate being focused on technical information rather than broad policy issues and implications of development.

This also leads to situations where scientific data is misinterpreted.

As a net result, lack of clear local environmental policy which is based in good scientific data can have a negative overall effect on a community. The credibility of both government permit agencies and legitimate environmental organizations can be diminished through environmentally driven permit processes which appear arbitrary and ineffective.

This Chapter addresses important environmental and resource issues not addressed in other chapters of this Plan. A consistent and uniform environmental policy approach is proposed. Additionally, broader environmental questions are framed in such a manner so as to lead logical and consistent future environmental standards. As a result, the City's goal of promoting *sustainable development* and reducing environmental regulatory conflict can be achieved.

## **9.2 Issues**

To accommodate future growth in the City of Waterford, while maintaining the characteristics of the City which make it both a *healthy* and a *special* place to live, several concerns must be addressed. The following "Goal" areas establish the City's policy with respect to maintaining a "sustainable" community

### ***9.2.1 Water Resources***

Long-term growth and development in Waterford depends on adequate clean water resources. Sustained development can be accommodated through the implementation of goals and actions contained in the Open Space and Public Facilities Chapters of this plan. These goals and actions address the need to

preserve and protect water quality while planning for the future water needs of the City and surrounding agricultural lands.

### ***9.2.2 Wildlife Resources***

Man's settlement of the San Joaquin Valley has had a profound impact on the wildlife resources of this region over the past 100 years. Today, it is recognized that the health of our natural plant and animal communities is a barometer of the overall health of our environment.

It is also recognized that modern healthy human communities can co-exist beside healthy wildlife communities with the sound application of open space policy and technology. The Open Space Chapter of this general plan contains goals and actions which are directed to the preservation, protection, and enhancement of the important wildlife habitat resources found in the Waterford urban area.

### ***9.2.3 Air Resources***

Poor air quality has become a negative symbol of modern urban development. Our quality of life is often measured by the quality of the air in our urban places. Poor air quality is related to a number of factors. Air quality policies in this plan address this complex environmental issue through goals, policies and actions contained in the Urban Expansion, Urban Design, and Transportation & Circulation chapters of this Plan. This chapter contains several specific air quality goals, policies and actions which support the overall City effort to restore the region's clean air.

### ***9.2.4 Cultural Resources***

Historic and cultural resources are important elements in the appearance and atmosphere of Waterford. The Waterford City Vision 2025 General Plan contains numerous references to the linkages between the past, present and expected future. This chapter contains specific goals and actions intended to guide future city-wide historic preservation efforts.

### ***9.2.5 Energy Resources***

Energy use is closely related to issues relating to air quality. The burning of fossil fuels as an energy source has been one of the most significant contributors to our deteriorating air quality. Long term growth is highly dependent upon how we use energy today and how we plan future energy use.

This chapter contains specific goals and policies which address issues of energy conservation and encourage use of sustainable energy resources. It should be noted, however, that, like air quality, energy use and conservation is a complex matter. It has a close relationship to topics such as urban design, land use, traffic and circulation, and conservation. Many goals, policies and actions contained in other chapters of this plan also have an indirect impact on energy use and conservation.

### ***9.2.6 Agriculture & Soil Resources***

Conversion of "prime" agricultural soils to non-agricultural uses can result in an irreversible loss in the agricultural production capacity of the region. Goals and actions contained in the Urban Expansion and Open Space chapters of this plan focus on the issue of agricultural soil loss. These additional

policies attempt to balance the urban growth needs of the region with the need to minimize urban encroachment onto “prime” agricultural soils.

are, by necessity, integrated into the entire *Waterford Vision 2025 General Plan*. The following section of this chapter specifically addresses goals and actions exclusively relating to air quality, cultural resources, and energy.

#### ***9.4 Goals, Policies and Actions***

As previously noted, sustainable development goals, policies and actions

### ***GoalArea SD-1: Air Quality***

#### **GOALS**

- SD-Clean Air, Free of Toxic Substances and Odor.**
- SD-Clean Air with Minimal Particulate Content.**
- SD-Effective and Efficient Transportation Infrastructure.**
- SD-Coordinated and Cooperative Inter-Governmental Air Quality Program.**

#### **POLICIES**

**SD-1.1** Accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in the City of Waterford.

**SD-1.2** Coordinate local air quality programs with regional programs and those of neighboring jurisdictions.

**SD-1.3** Integrate land use planning, transportation planning, and air quality planning for the most efficient use of public resources and a more livable environment.

**SD-1.4** Educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.

**SD-1.5** Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs.

**SD-1.6** Reduce emissions of PM<sub>10</sub> and other particulates with local control potential.

#### ***Policy SD-A-1***

#### ***Accurately Determine and Fairly Mitigate the Local and Regional Air Quality Impacts of Projects Proposed in the City of Waterford.***

*The environmental assessment process required under the California Environmental Quality Act (CEQA) is by far the most important tool for local government to communicate with other agencies and the public on the air quality impacts of development within a community. CEQA, however, has only limited applicability with respect to development review and approval. The law focuses on “discretionary” projects, as opposed to “administrative” development proposals. As a result, large scale developments, which typically require “discretionary” permits are often subjected to CEQA mitigation that is not normally required. Consistent application of CEQA can make a difference in project level air quality impacts. Uniform air quality standards, however, can make a significant difference on regional cumulative air quality impacts. For this policy, the City of Waterford will pursue the following:*

*Implementing Actions:*

**SD-1.1a Develop uniform standards for mitigating air quality impacts resulting from development.**

The City will work closely with the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) to develop uniform standards for determining “thresholds of significance” for air quality impacts for use in the City’s CEQA review process. The City will also identify cost effective and uniform mitigation standards and will apply these standards to all development in a consistent and uniform manner.

**SD-1.1b Ensure that significant air quality impacts identified during CEQA review are consistently and fairly mitigated.**

The City will work closely with the SJVUAPCD, builders, and other interested parties to develop uniform and appropriate mitigation measures in the City. City policies and provisions will attempt to eliminate mitigation policies and practices which discourage large-scale comprehensively planned projects.

**SD-1.1c All air quality mitigation measures should be feasible, implementable, and cost effective.**

City planning efforts focus on development standards which discourage growth patterns that unnecessarily have an adverse impact on air quality. Further mitigation of air quality impacts, at the project specific level, should focus on the unique circumstances of the project and the site with respect to air quality impacts. Project specific mitigation measures will be developed to assure that they can be implemented in a manner that achieves the desired effect and so that the benefits in improved air quality are justified in light of private and public expenditure.

**SD-1.1d Work with the SJVUAPCD to identify regional cumulative transportation and air quality impacts.**

The City shall work with the SJVUAPCD and other local governments in the region to perform uniform air emissions modeling on the cumulative land use changes in the region. The City will participate in regional planning efforts that will fairly assess the air quality impacts of various local governmental growth policies. It is expected that this effort would lead to regional growth and development strategies (developed, administered, and implemented at the local government level) that will substantially reduce the adverse impacts of new growth and development on regional air quality.

**SD-1.1e Reduce the air quality impacts of development projects that may be**

**insignificant by themselves, but cumulatively significant.**

Small residential and commercial projects usually do not cause significant air quality impacts, but when a number of small unrelated projects are developed in an area they produce a cumulative impact. These potential impacts have been addressed in the development of the Waterford general plan land use diagram. Individual projects which are consistent with these general plan policies should be subject to limited air quality analysis which focuses on neighborhood level impacts. Other projects will need to be evaluated within the context of the net cumulative effect on regional air quality. These principles of review shall also be applied to development proposed outside of the City’s Urban Growth Area which are subject to City review and comment.

**SD-1.1f Encourage innovative measures to reduce air quality impacts.**

Innovative measures can be identified during a pre -application consultation process and

during city staff/applicant consultation over CEQA mitigation approaches.

***Policy SD-1.2***

**Coordinate Local Air Quality Programs With Regional Programs and Those of Neighboring Jurisdictions.**

*Effective coordination and cooperation between local agencies in the implementation of government air quality programs is critical. Air quality problems transcend local agency boundaries and management of these problems requires various units of government to search for comprehensive solutions to the problem. Local governments working together for a common interest can multiply the resources available to accomplish air quality goals. To this end, the City of Waterford will pursue the following:*

***Implementing Actions:***

**SD-1.2a Work with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues.**

The City can create an environment that allows and encourages staff members to keep up with activities in neighboring jurisdictions and regional agencies. This may be accomplished by sending representatives to appropriate meetings, by contacting counterparts in other agencies when developing programs, and most important, by active participation in regional program planning.

The Planning Department, as required by law, maintains internal procedures to ensure that all affected jurisdictions and agencies are notified of development proposals. When another agency notifies the City of a pending project, air quality related issues, such as the following, should be examined:

- 1) Congestion on City streets from increased traffic caused by the project;
- 2) Effects on the viability of transit and pedestrian-oriented developments in your area (i.e., approval of a low density development on the same transit corridor as your transit-oriented development could reduce the ability of the transit provider to provide reasonable headways);
- 3) Failure of the other jurisdiction to require the construction of a segment of a bikeway planned in the regional bikeway plan;
- 4) Proposed circulation amendments that may restrict traffic flow to or from the City or that produce urban sprawl.

**SD-1.2b Consult with the SJVUAPCD during CEQA review for discretionary projects.**

Ensure that the SJVUAPCD is on the distribution list for all CEQA documents. Conduct a pre-application air quality review to identify issues or problems that might require redesigning of or major alterations to the project.

**SD-1.2c Coordinate with other jurisdictions and other regional agencies in the San Joaquin Valley to establish consistent and uniform implementation measures (trip reduction ordinances, indirect source programs, etc.).**

The City will work with the Stanislaus County Council of Governments on programs implementing transportation control measures and will work with the County and neighboring cities to ensure programs are complementary. The City will maintain its

involvement in the rule development process and provide representation on air quality steering and advisory committees.

***Policy SD-1.3***

**Integrate Land Use, Transportation, and Air Quality Planning for the Most Efficient Use of Public Resources and A More Livable Environment.**

*In the past, transportation planning emphasized the construction of new roadway capacity to reduce congestion and to meet the needs of planned development. Air quality legislation now mandates all transportation plans to consider air quality. This new emphasis requires our land use and transportation plans to create patterns of development and transportation infrastructure that reduce the need for new capacity and improve air quality.*

***Implementing Actions:***

**SD-1.3a The City of Waterford will consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.**

Develop coordinated land use and transportation plans to meet federal, state, and local air quality requirements. Ensure that land uses proposed in general plan updates and general plan amendments are supported by a multi-modal (auto, transit, bicycling, pedestrian, etc.) transportation system, and that the land uses themselves support the development of the transportation system.

**SD-1.3b Transportation improvements should be consistent with the air quality goals and policies of the general plan.**

Analyze project submittals for consistency. Examples of inconsistent projects are a road widening project that does not consider transit, bicycling, and pedestrian needs along the route or an intersection signalization project that does not involve the installation of signal actuators that can be activated by bicyclists or pedestrians.

**SD-1.3c The City of Waterford will consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.**

Work with transit providers to develop long range transit plans based on land use plans supportive of future transit service. Consult with transit providers during the CEQA process to determine the impacts of development projects on the transit system. **SD-1.3d Encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.**

The New Urbanist or Neo-Traditional land use and design policies of this general plan encourage the provision of sufficient density to make public transit feasible in new growth areas. The City, in cooperation with other public agencies, may explore the use of special funding sources which could assist in financing necessary infrastructure which would enhance residential development and maintain affordability for low and moderate income households.

**SD-1.3e The City of Waterford will work with Caltrans and StanCOG, the Regional Transportation Planning Agency, to minimize the air quality, and mobility impacts of large-scale transportation projects on existing neighborhoods.**

Provide safe pedestrian and bicycle connections between neighborhoods and shopping areas when they become separated by new rail or freeway projects

(Notes: The Urban Design goals and policies contain specific standards for land use which incorporate the Urban Villages design concepts for developing land uses which support development and operations of public transportation systems and other alternative modes of transportation.)

**Policy SD-1.4**

**To Educate the Public on the Impact of Individual Transportation, Lifestyle, and Land Use Decisions on Air Quality.**

*Without the understanding and support of the general public, local air quality programs cannot be expected to achieve the desired results. Programs to educate the public on air quality issues are a vital component of a successful air quality program*

**Implementing Actions:**

**SD-1.4a Work to improve the public's understanding of the land use, transportation, and air quality link.**

*The City should support the SJVUAPCD efforts to educate developers and the public on the benefits of pedestrian and transit-friendly development and should participate in local programs that can reduce vehicle trips and miles traveled.*

**SD-1.4b The City of Waterford supports SJVUAPCD efforts to encourage formation of local groups that provide air quality education programs.**

*The City supports the SJVUAPCD efforts informing a community-wide public/private air quality organization to promote air quality education programs. To this end, the City will work with the SJVUAPCD, Farm Bureau, the University of California Extension Studies, and farm organizations on educational programs.*

**Policy SD-1.5**

**Provide Public Facilities and Operations that can Serve as a Model for the Private Sector in Implementation of Air Quality Programs.**

*City and county governments are often the largest employers in a jurisdiction and operate large vehicle fleets. While it is recognized that the City of Waterford has very limited resources to play any meaningful role in supporting private sector energy conservation efforts, the City can pursue policies and programs which may have private sector applicability. In this respect, the City may take a leadership role in implementing employer-based trip reduction programs and fleet operator programs to reduce the City's emissions, demonstrate cost effective energy management techniques, and save public money. Options available to the City of Waterford and other larger employers include:*

**Implementing Actions:**

**SD-1.5a Study implementing innovative employer-based trip reduction programs for**

**their employees.**

Ensure that employment contracts negotiated with employee unions are flexible and allow workers to participate in programs that reduce commute trips.

**SD-1.5b Fleet vehicle operators should evaluate alternatives which include replacing or converting conventional fuel vehicles with clean fuel vehicles.**

Budget for clean fuel vehicles in long range capital expenditure plans.

**SD-1.5c Support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.**

Work with the telephone company and interested public agencies to develop a multi-user teleconferencing center. Use commercial teleconferencing facilities if they are cost competitive with respect to considering travel costs and employee time savings. This program can be linked to the development of the Downtown Campus program of the City.

**SD-1.5d Make use of telecommuting programs as part of their trip reduction strategies.**

Identify positions where telecommuting is feasible. Consider a pilot program with employee volunteers for the most promising positions.

**SD-1.5e Encourage the development of state of the art communication infrastructure linked to the rest of the world.**

Support changes to the state Uniform Building Code to require new homes and businesses to be wired with fiber-optic cables or to require wiring conduits with easy access and adequate capacity to allow for efficient retrofitting. Encourage the development of video-teleconferencing facilities and telecommuting centers. The City should study formation of public/private partnerships with major employers employing large numbers of long distance commuters. Telecommuting centers are generally compatible with mixed-use, pedestrian-oriented, and transit-oriented neighborhood commercial areas.

### ***Policy SD-1. 6***

#### **To Reduce Emissions of $PM_{10}$ and Other Particulates With Local Control Potential.**

*The levels of  $PM_{10}$  (particulate matter less than 10 microns in diameter) exceed state and federal health based standards. The San Joaquin Valley is classified as a serious non-attainment area for  $PM_{10}$  under the federal criteria. Because of this classification, the Air District is subject to a series of federal mandates aimed at achieving federal ambient air quality standards. Control efforts for sources under the jurisdiction of cities and counties can significantly reduce these emissions.*

#### ***Implementing Actions:***

**SD-1.6a The City of Waterford will work with the SJVUAPCD to reduce, to the maximum extent feasible, particulate emissions from construction, grading, excavation, and demolition.**

The City should include  $PM_{10}$  control measures as conditions of approval for subdivision maps, site plans, and grading permits. This will assist in implementing the district's  $PM_{10}$  regulation.

The City should inform developers of the requirements of the district's PM<sub>10</sub> regulation when they apply for a grading permit.

Use strategies to minimize soil disturbances including:

- Minimize vegetation removal required for fire prevention to the extent compatible with public safety considerations. Utilize alternatives to disking, such as mowing, to the extent feasible. Where vegetation removal is required for aesthetic or property maintenance purposes encourage or require alternatives to disking.
- Condition grading permits to require that graded areas be stabilized from the completion of grading to commencement of construction.

**SD-1.6b The City of Waterford shall reduce PM<sub>10</sub> emissions from City maintained roads to the maximum extent feasible.**

Continue the City's street cleaning program aimed at removing heavy silt loadings from roadways which result from sources such as storm water runoff and construction sites.

**Goal Area 2: Cultural Resources**

**GOALS**

- SD-A Diverse And Rich Historic and Cultural Resource Environment**
- SD-A Long-Term Community Historic Preservation/Improvement Program**

**POLICIES**

**SD-2.1** Identify and preserve the City's archaeological resources.

**SD-2.2.** Identify and preserve the City's historic and cultural resources.

**SD-2.3** Develop and promote financial incentive programs for historic preservation efforts.

**Policy SD-2.1**

**Identify and Preserve the City's Archaeological Resources.**

*It is thought that the San Joaquin Valley was inhabited in the late Pleistocene and early Holocene period, dating from perhaps as early as 12,000 years before the present (B.P.). Prior to Euro-American arrival, the San Joaquin Valley was occupied by Yokut Indian populations. The Yokuts settlement system was characterized by principal villages on terraced areas adjacent to watercourses. Knowledge of these early inhabitants is limited. It is likely that the streams and the Tuolumne River corridor traversing the Waterford Planning Area served as settlements for Yokuts and it is a state policy to preserve and protect the archaeological resources of the region*

**Implementing Actions:**

**SD-2.1a Utilize the inventory of known archaeological sites maintained by the Central California Information Center for the review of development proposals.**

The Archaeological Inventory shall be used to identify areas within the Waterford Planning Area subject to preservation practices. For large-scale development projects proposed in close proximity to a natural water course, or in an area which exhibits potential for containing cultural resource material, preliminary cultural resource

inventories should be conducted by a qualified archaeologist. Information from these site investigations shall be provided to the Central California Information Center for recordation.

**SD-2.1b Utilize standard practices for preserving archaeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation.**

Cultural resource discoveries are subject to the rules and regulations in state law. The City should work closely with the building trades industry to facilitate compliance with these laws and to assist, where necessary, in minimizing the adverse impacts of the implementation of these laws on the City's construction industry.

**SD-2.1c If appropriate, consider reconstruction of archaeological sites in City parks, on school grounds, in open space areas, or other suitable locations where they can serve an educational purpose.**

In order to increase the public's awareness of the cultural heritage of Waterford, the City should support the efforts of Native American groups and individuals to develop cultural displays and exhibits in local public places.

***Policy SD-2.2***

**Identify and Preserve the City's Historic and Cultural Resources.**

*The City of Waterford contains some fine examples of its early settlement. Historic buildings, tree plantings, and other improvements serve to give the City a special character which is unique in the San Joaquin Valley. The City of Waterford is dedicated to preserving, protecting, and enhancing its historic and cultural resources.*

***Implementing Actions:***

**SD-2.2a Expand City cultural and historic information resources.**

Work to establish and maintain an inventory of cultural, historic, and architecturally significant resources within the City and the planning area by expanding and improving the existing inventory of the downtown area. Consider a program or support other programs which designate historic landmarks and architecturally significant structures in the City.

**SD-2.2b Support community groups and individuals working to preserve, protect, and enhance the City's historic and cultural resources.**

In accordance with the City's Historic Preservation Ordinance (MMC 17.54) which outlines procedures and criteria for historic designation, continue to support Historic Preservation Commission activities. Support, as feasible, both private and public efforts to preserve and rehabilitate historic structures in the City, including the need to protect a site from intrusion of surrounding land uses which are un-complementary or incompatible.

**SD-2.2c Review and revise, as necessary, the City's development/construction regulations to facilitate the preservation of historic structures.**

Investigate and consider the possibility of using historic overlay zones in conjunction with the Historic Preservation Ordinance to control the use of or modification to significant historic areas in the community.

**SD-2.2d Support, as feasible, efforts to promote the preservation of historically or**

**architecturally significant structures in the City.**

Support the preservation of the downtown's historically and architecturally significant structures. Encourage the design of new developments to be consistent with the design, character, and building bulk of the existing downtown. Encourage and support efforts to preserve historic structures in the Courthouse Square area.

**Policy SD-2.3  
Develop and Promote Financial Incentive Programs for Historic Preservation Efforts.**

*Historic and cultural resources can be a financial liability to private citizens. In many instances, it is more economical to demolish and build new structures than to rehabilitate historic structures. The economics of maintaining and improving historic properties has resulted in many buildings and structures being lost or allowed to deteriorate to such a degree that preservation is impractical. The City will assist in the identification of financial resources that can be used by individuals and groups in the City to preserve, enhance and protect the historic and cultural resources of the City.*

**Implementing Actions:**

**SD-B-3a Work to identify financial resources which can be used for historic preservation efforts in Waterford.**

Utilize, where possible, Redevelopment Commercial Rehabilitation Loan Program funds to help finance restoration of historic buildings and structures in Waterford. Identify other sources of historic preservation funds, such as Community Development Block Grants, Office of Historic Preservation Grant Funds, etc., to be used to finance historic renovation/restoration projects.

**SD-2.3b Provide access to information on financial resources available to property owners to assist in historic preservation/restoration efforts.**

Refer interested property owners to the State Office of Historic Preservation for information regarding tax advantages of national registry of historic properties, special building code standards applicable to historic buildings and structures, and loan and grant programs available to finance historic preservation/renovation.

**Goal Area 3: Energy Resources**

**GOALS**  
 **SD-Sustainable Energy Resource Use in the City of Waterford.**  
 **SD- Application of “Green” or High Performance Building Technology**

**POLICIES**  
**SD-3.1** Promote the Use of Solar Energy Technology.  
**SD-3.2** Encourage the use of energy conservation features and low-emission equipment for all new residential and commercial development.

***Policy SD-3.1***

**Promote the Use of Solar Energy Technology.**

*Waterford is located in an area that can benefit from the use of solar energy technology to lower household heating costs.*

***Implementing Actions:***

**SD-3.1a Encourage the use of solar energy in design and management of all new construction in the City.**

The City should work with members of the building and utility industries in identifying public policies and regulations which inhibit the construction of energy efficient development. The City should prepare guidelines and standards which can be used by members of the construction industry in the design of new building and development projects.

**SD-3.1b Require all new subdivisions to maximize, to the extent feasible, proper orientation of lots with regard to solar utilization.**

Proper solar orientation of lots often results in inefficient or poor circulation system designs. Good subdivision design attempts to maximize the benefits of lot orientation for solar access while maintaining the optimum circulation system design. The City planning staff should develop a library of subdivision design concepts that have proven effective in furthering energy conservation goals in other similarly situated communities as the City of Waterford. This information should be made available to real estate developers and home builders.

**SD-3.1c Encourage developers and builders to properly design all structures on each building lot in the City to take fullest advantage of solar use in heating and cooling.**

The City planning staff should develop a library of building design concepts that have proven effective in furthering building energy conservation goals in other similarly situated communities. This information should be made available to real estate developers and home builders.

**SD-3.1d Encourage developers and builders to maximize “passive” solar design, such as large south-facing windows for winter heat gains and overhangs and shading for summer heat protection.**

The City should collect and make available to builders and homeowners design solutions to passive solar construction problems and support the local building industry’s efforts to comply with state regulations on energy conservation design standards.

**SD-3.1e Pursue further investigation of potential benefits utilizing building code revision, narrower streets, solar access rights, and other energy-saving**

**techniques.**

The City should continue to monitor policy developments at the state level and in other San Joaquin Valley communities to determine the most efficient and effective design policies that might be applied to new development in the City. Where appropriate, staff should recommend changes in policies and standards where it can be demonstrated that such changes will appreciably reduce energy consumption.

**Policy SD-3.2**

***To Encourage the Use of Energy Conservation Features and Low-Emission Equipment for All New Residential and Commercial Development.***

*Natural gas burning appliances used for space heating, water heating, and cooking are a sizable source of NO<sub>x</sub> emissions. Consumption of electricity causes pollutant emissions when the power plant is fueled by fossil fuels. Local efforts to reduce energy consumption can save consumers money and improve air quality. The City of Waterford will pursue the following:*

***Implementing Actions:***

**SD-3.2a Work with the local energy providers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.**

- x Encourage the incorporation of energy conservation features in the design of all new construction and the installation of conservation devices in existing developments. x Encourage energy audits of existing structures, identifying levels of existing energy use and potential conservation measures.
- x Encourage the use of passive design concepts that make use of the natural climate to increase energy efficiency.
- x Encourage new development not to preclude the use or development of solar energy systems by uses and/or placement of buildings on adjacent properties.
- x Incorporate the most energy-efficient design consistent with a reasonable rate of return and the recognition of the environmental benefits of energy conservation for all local government facilities and equipment.
- x Perform an energy audit of existing public buildings and retrofit where cost-effective. x Develop an energy management system for public buildings.

**SD-3.2b Cooperate with the local building industry, utilities, and the SJVUAPCD to promote enhanced energy conservation standards for new construction.**

Work with the California Energy Commission (CEC) and local utilities to identify areas of the existing state standards that can be enhanced most cost-effectively.

**SD-3.4c Encourage new residential, commercial, and industrial development to reduce**

*air quality impacts from area sources and from energy consumption.*

- x Support the use of weatherization programs for existing residential units and businesses.
- x Encourage the installation of supplemental solar water heaters for new residential units.
- x Support future SJVUAPCD incentives and regulations to reduce emissions from swimming pool heaters.
- x Encourage the use of solar water and pool heaters, and energy efficient lighting. x Encourage developers to orient housing units and landscape building sites to maximize solar heating and cooling.
- x Encourage the installation of energy efficient fireplaces and wood stoves in lieu of normal open hearth fireplaces.
- x Establish standards for the provision of natural gas lines or electrical outlets to backyards to encourage the use of natural gas or electric barbecues, and electric gardening equipment.
- x Support the use of electric vehicles, such as golf carts, where appropriate. Provide electric recharge facilities for electric vehicles.

***Goal Area 4: Agricultural Resources***

**GOALS**

- SD-A Sustainable Agricultural Economy
- SD-Preserved High Value Farmland

**POLICIES**

**SD-3.1** Preserve the City's Prime agricultural soil resources.

***Policy SD-4. 1***

***Preserve the City's Prime Agricultural Soil Resources.***

*Agriculture and the agricultural economy of the region are the underpinning of a sound economic base of the City of Waterford. Central to the maintenance of that economic base is the preservation of the most productive agricultural soils in the region. The City of Waterford will pursue the following:*

***Implementing Action:***

**SD -4.1a. Direct development away from large tracts of "Prime" agricultural soils.**

The City of Waterford is surrounded by high quality farmland, much of which is designated as "Prime" farmland. At the same time, the City serves as a urban center to the surrounding agricultural region providing housing, goods, and services. Urban expansion should be directed away from significant concentrations of Prime soils or tracts of Prime soils that are in large productive ranch holdings whenever possible. At the same time, the City should balance the need to maintain a compact urban form with the need to encroach into productive farmland on "Prime" soils. Priority consideration should be given to guiding development within the City's Sphere of Influence in such a manner as to minimize impacts on Prime soils along the City's urban fringe.

**SD-4.1b. Limit development and development related impacts on agricultural lands along the City’s urban fringe.**

Less intense development (i.e. large lot single-family housing) should be directed toward the eastern, northern, and western fringes of the City, except where more intense development can be served by major transportation corridors or buffered with open space, parkland, or other types of buffers.

<b><i>Goal Area 5: Sustainable Design</i></b>
<b>GOALS</b>
~ <b>SD-Sustainable “Green” Buildings City of Waterford.</b>
~ <b>SD- Application of “Green” or High Performance Building Technology</b>
<b>POLICIES</b>
<b>SD-5.1.</b> Use of Sustainable or “Green” Building Principals in Site Design and Layout.
<b>SD-5.2.</b> Use of Sustainable or “Green” Building Principals to promote Water Conservation.
<b>SD-5.3.</b> Use of Sustainable or “Green” Building Principals to promote Energy Conservation.
<b>SD-5.4.</b> Use of Sustainable or “Green” Building Principals to promote Interior Building Environmental Quality.
<b>SD-5.5.</b> Use of Sustainable or “Green” Building Principals to Assure Use of Efficient Building Materials Use.
<b>SD-5.6.</b> Use of Sustainable or “Green” Building Principals to Minimize Waste Generation.

<b><i>Policy SD-5.1</i></b>
<b><i>Use of Sustainable or “Green” Building Principals in Site Design and Layout.</i></b>
From the very outset, building development affects and transforms the land. On a macro level it contributes to deforestation, destruction of wetlands, sprawl, and other environmental problems. The sprawl of cities also affects the environment adversely. Further, when development is spread out at a low density it requires more infrastructure - sewer pipes, power lines, water mains, roads and so on. In addition, the thousands of energy burning vehicles driving out to these areas contribute to environmental damage.
Sustainable <i>Site</i> design embodies the following: <ul style="list-style-type: none"> <li>x Efficient use of site area with new development.</li> <li>x Maintain and/or restore the biodiversity of natural systems on development sites. x Respond to microclimate and natural energy flows.</li> <li>x Restore, maintain, and/or enhance the natural character of the site.</li> <li>x Reduce energy use for transportation.</li> </ul>
<b><i>Implementing Actions:</i></b>
<b>SD-5.1a. Direct Development to Environmentally Appropriate Areas</b>
Identify environmental constraints and resources of a site and on adjacent properties.

Locate buildings and improvements in such a manner as to minimize impacts on these resources. Make sure that the size and scale of the planned improvements is appropriate for the site.

**SD-5.1b. Maintain and Enhance the Biodiversity and Ecology of the Site** Utilize existing environmental resource areas as landscape features. Plan landscape elements in such a manner as to promote on-site wildlife habitat and create area “connectors that divert wildlife away from streets and roadways.

**SD-5.1c. Use Native Trees, Shrubs, and Plants**

Use native trees, shrubs and plant in landscape area to promote water conservation and add to the diversity of native plant areas within the City.

**SD-5.1d. Use Resource Efficient Modes of Transportation**

Locate parking and vehicle access so as to minimize conflicts with non-vehicular traffic. Place bus shelters and build bus loading and off-loading turn-outs at approved locations along major roadways.

**Policy SD-5. 2**

***Use of Sustainable or “Green” Building Principles to promote Water Conservation.***

Building construction and operation draw heavily on water from the environment. Most of the earth's water is located in oceans and is too salty for residential, commercial or industrial use. Only about 0.003 percent of earth's water is readily available as fresh water for human use. Building materials manufacturing, construction and operations consumes 16 percent of available fresh water annually. This does not reflect the impact of the building industry on the quality of water. Growth in urban water use is lowering water tables and necessitating large projects that siphon supplies away from agriculture. Sustainable environmental design embodies the following:

- x Preserve site watersheds and groundwater aquifers.
- x Conserve and reuse storm-water.
- x Maintain appropriate level of water quality on the site and in the building(s).
- x Reduce potable water consumption.
- x Reduce off-site treatment of wastewater.

***Implementing Actions:***

**SD-5.2a. Manage Site Water**

Create on-site small scale water features as part of landscape design that can serve as on-site storm water detention and minimize storm-water runoff during peak winter storm periods.

**SD-5.2b. Use Gray Water Systems**

Design landscape areas to make maximum use of treated wastewater or “purple pipe” systems.

**SD-5.2c. Conserve Building Water Consumption**

Use low flow water fixtures throughout the building.

**Policy SD-5. 3**

***Use of Sustainable or “Green” Building Principals to promote Energy Conservation.***

Buildings are energy intensive in their construction and operation. According to the Worldwatch Institute about 40 percent of the world's total energy usage is dedicated to the construction and operation of buildings. Buildings consume energy, from the mine to foundry to construction site. In the United States, construction and material production account for roughly 9 percent of energy use. In contrast, buildings operation accounts for approximately 30 percent of U.S. energy consumption. This energy use has serious impacts on the environment. Buildings account for about one-third of the emissions of heat-trapping carbon dioxide from fossil fuel burning and two-fifths of acid rain-causing sulfur-dioxide and nitrogen oxides. Buildings also contribute to other side effects of energy use, including oil spills, nuclear waste generation, river damming, toxic run-off from coal mines, and mercury emissions from coal burning. Sustainable energy design embodies the following:

- x Reduce total energy consumption of buildings.
- x Reduce air pollution, global warming, and ozone depletion impacts of energy sources
- x Slow depletion of fossil fuel reserves.

***Implementing Actions:***

**SD-5.3a. Building Design and Placement to Reduce Energy Use** The sustainable energy development embody the following strategies: x  
Reduce Loads

- x Optimize Building Placement and Configuration for Energy Performance x
- Optimize Building Envelope Thermal Performance
- x Provide Day-lighting Integrated with Electric Lighting Controls

**SD-5.3b. Electrical System Design to Reduce Energy Use**

***Design Efficient Systems***

- x Provide Efficient Electric Lighting Systems and Controls
- x Maximize Mechanical Systems Performance
- x Use Efficient Equipment and Appliances
- x Use Energy Sources with Low Environmental Impact
- x Use Renewable or Other Alternative Energy Sources
- x Simulate Total Building Energy Use
- x Integrate All Systems and Reduce Total Energy Use

**Policy SD-5. 4**

***Use of Sustainable or “Green” Building Principals to promote Interior Building Environmental Quality.***

A healthy, productive, and comfortable environment is expected at home and in the workplace. Yet many modern buildings create unhealthy and potentially dangerous interior environments for their occupants. Lighting may be inadequate or incorrect for it's

intended function. Thermal conditions may become extreme, and it's control may be inaccessible to the occupants. Ventilation systems installed to protect air quality often subject occupants to stale air, or harbor and spread unhealthy molds, bacteria, and viruses. The medical, human comfort, performance and productivity costs of unhealthy interior environments may run into the tens of billions of dollars each year. Research also shows that buildings with daylight, fresh air, and occupant control are consistently rated as more comfortable and contribute to occupants' performance and productivity. In a typical U.S. office, salaries are so high that if productivity rises just 2 percent, it is worth more to a company than entirely eliminating utility bills. Sustainable interior design embodies the following:

- x Provide an environment for occupants that is physiologically and psychologically healthy.
- x Minimize production and transmission of air pollution.
- x Provide the full range of supportive sensory conditions (olfactory, thermal, vibro-acoustic, tactual, and visual) for occupants.
- x Provide needed operational control of systems to occupants.
- x Produce environments that enhance human comfort, well-being, performance, and productivity.

***Implementing Actions:***

**SD-5.4a. Design Indoor Space to Create Better Indoor Air Quality.**

***Indoor Air Quality***

- x Provide a Clean and Healthy Environment
- x Control Moisture to Prevent Microbial Contamination
- x Provide Ample Ventilation for Pollutant Control and Thermal Comfort

**SD-5.4b. Design Indoor Space to Improve Human Comfort.**

***Human Comfort***

- x Provide Appropriate Thermal Conditions
- x Provide Effective Lighting
- x Provide Appropriate Building Acoustical and Vibration Conditions
- x Provide Views, View-space, and Connection to Natural Environment

***Policy SD-5. 5***

***Use of Sustainable or “Green” Building Principals to Assure Use of Efficient Building Materials Use.***

Building design and construction use significant quantities of natural resources and materials. The manufacturing process of new materials is water and energy intensive and contributes to environmental degradation and pollution. Harvesting, extraction, mining, and processing new materials pollute the air and rivers and threaten ecosystems and wildlife habitat. Consumption of other raw materials and natural resources continue to accelerate. Sustainable materials use in design embodies the following:

- x Minimize consumption and depletion of material resources.

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- x Minimize the life-cycle impact of materials on the environment
- x Minimize the impact of materials on indoor environmental quality

**Implementing Action:**

**SD-5.5a. Use Design Materials that Minimize Resource Consumption and Reduce Environmental Harm.**

Construction materials strategies should examine:

- x Use Materials with Low Environmental Impact During Their Life Cycle
- x Use Salvaged and Remanufactured Materials where possible
- x Use Recycled Content Products and Materials
- x Use Materials from Renewable Sources
- x Use Locally Manufactured Materials
- x Use Low VOC-emitting Materials
- x Use Durable Materials

**Policy SD-5. 6**

***Use of Sustainable or “Green” Building Principles to Minimize Waste Generation.***

Waste is generated throughout the life of a building. Brick, metals, wood, cardboard, and other waste is generated and land-filled during building demolition, renovation, and construction. Construction and demolition waste represents 1/4 to 1/3 of all waste land-filled in the U.S. Land-filling construction and demolition waste, instead of recycling it, is a loss of material resources. During building operations, waste such as paper, aluminum cans, and glass is also generated; it too is a burden on our landfills and a loss of our natural resources. Sustainable design embodies minimizing waste generation through the following:

- x Minimize use of non-renewable resources.
- x Minimize waste generated from construction, renovation and demolition of buildings
- x Minimize waste generated during building occupancy.
- x Encourage better management of waste.

**Implementing Actions:**

**SD-5.6a. Waste Reduction Strategies Should be Incorporated into a Buildings Design Specifications.**

Waste reduction strategies should include:

- x Reuse Existing Buildings
- x Design for Less Material Use
  - x Design Building for Adaptability
  - x Design Building for Disassembly
- x Salvage and Recycle Demolition Waste
- x Recycle Construction Waste
- x Reduce and Recycle Packaging Waste
- x Reduce and Recycle Waste from Building Users
- x Reduce and Properly Dispose of Hazardous Waste