

The City of  
***Waterford***

General Plan  
Program Environmental Impact Report

*August 2006*

**The City of Waterford**

***General Plan***

**Program Environmental Impact Report**

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## *Preface*

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### ***Introduction***

This Program Environmental Impact Report (PEIR) has been prepared to satisfy the requirements of the California Environmental Quality Act (CEQA) for the Waterford Vision 2025 General Plan Update. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

- 1) Geographically,
- 2) As logical parts in the chain of contemplated actions,
- 3) In connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program, or
- 4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Since this environmental analysis is for a general plan, which establishes a continuing program of development guidance for the city, it is called a program EIR.

The Waterford Vision 2025 General Plan Update is also referred to as the “project” within this document. The EIR conforms to the requirements of the California Environmental Quality Act of 1972 (CEQA), as amended, the State CEQA Guidelines, and the administrative procedures established by the City of Waterford for the preparation and processing of EIRs. CEQA regulations are contained in Public Resources Code Section 21000 et. seq., and the CEQA Guidelines are contained in 14 California Administrative Code Section 15000 et. seq. In accordance with Sections 15050 and 15367 of the State CEQA Guidelines, the City of Waterford is designated as the lead agency for this project.

An EIR is an informational document providing the general public and appropriate governmental agency decision-makers with a full understanding of the potential environmental effects of a proposed project. The EIR process is intended to enable public agencies to evaluate a project for determination of the significance of its effects on the environment, to examine and institute methods of reducing and/or eliminating the severity of adverse impacts, and to consider alternatives to the project as proposed. CEQA requires that major consideration be given to preventing environmental damage. At the same time, it is recognized that public agencies have obligations to balance other public objectives, including economic and social factors, in determining whether and how a project should be approved.

CEQA requires that all state and local government agencies consider the environmental consequences of their project decisions. The CEQA Guidelines define "significant effect on the environment" as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air,

water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (Guidelines Section 15382).

The EIR is intended to provide decision-makers and the public with information concerning the potential environmental effects of a project. It is also the means by which possible ways to reduce or avoid environmental damage can be evaluated. The EIR must also disclose significant environmental impacts that cannot be avoided, potential cumulative impacts and environmental consequences that are not deemed to be significant.

### ***Methodology of the EIR***

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This EIR addresses the potential effects of adopting a general plan for the city's future Urban Growth Area and the proposed Sphere of Influence (SOI).

An EIR prepared for a general plan is considered to be a "program EIR" since all the specific impacts of the various individual projects are not known at this time. A program EIR is therefore more general in nature and focuses on the overall impacts associated with the specific public policies and goals proposed or projects that are anticipated or likely to occur as part of or as a result of general plan implementation. As individual development proposals are considered by the city, additional environmental analyses will be completed as determined necessary pursuant to Section 15162 of the CEQA Guidelines. It is expected that subsequent EIR and Initial Studies prepared for projects proposed in accordance with the city's general plan will utilize this document as a primary source of data and that the overall environmental determinations contained in this document will be applied to future decisions made with respect to the implementation of the general plan.

The nature of potentially significant impacts associated with the general plan process as they will affect the city of Waterford has determined the scope of environmental issues incorporated into the discussion appearing in subsequent chapters of this report. Key aspects of the environment are addressed in this document in conformance with the requirement of the CEQA Guidelines that:

“The EIR shall focus on the significant effects on the environment. The significant effects should be discussed with emphasis in proportion to their severity and probability of occurrence. (Section 15143)”

The Guidelines further prescribe that:

“The degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR. (Section 15146).”

The determination to prepare an EIR on the general plan update was based upon the findings of a Notice of Preparation (NOP) to potentially affected agencies and other



interested parties. The Notice of Preparation and comments received in response to the NOP are included in this document as *Appendix A*.

### ***Program EIR Organization***

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This environmental document has been prepared in accordance with the CEQA Guidelines and state law. The document has been organized in such a manner as to present environmental data in a logical manner for the convenience of the reader.

For this reason, discussions regarding:

- Setting Descriptions,
- Significant Environmental Effects of the Proposed Project,
- Unavoidable Significant Environmental Effects and
- Mitigation Measures Proposed to Minimize Significant Effects,

have been included under each environmental topic heading in Chapter 3, *Environmental Analysis*. This chapter also contains discussion regarding “*Thresholds of Significance*” relative to various potential adverse environmental impacts.

Chapter 4 addresses **Significant Unavoidable Effects Which Cannot Be Avoided if the Project is Implemented**. Chapter 5 addresses **Significant Irreversible Environmental Changes Which Would be Involved With the Project Should it Be Implemented**. Chapter 6 includes a discussion of the **Growth-Inducing Impacts of the Proposed Project**. Chapter 7 contains a discussion of **the Mitigation Measures Proposed to Minimize the Significant Effects** of the project. Chapter 8 addresses various **Project Alternatives** to the proposed project. Chapter 9 contains a discussion of the **Cumulative Impacts** of the project. Chapter 10 includes the Program EIR’s **Mitigation Monitoring & Reporting Program** and Chapter 11 lists **Organizations and Individuals Contacted and References** used during the preparation of the PEIR

### ***“Draft” and “Final” Program EIR Documents***

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Under the California Environmental Quality Act, an Environmental Impact Report (EIR) is a two-part document. The “Draft” EIR is prepared following the “Notice of Preparation” and “Early Consultation” phases of the process. This “Draft EIR” is then circulated for public review and comment.

The “Final EIR” contains comments made during the public review process along with any changes in the document and/or “responses” made to comments received.

The end product is a document that contains data and analysis on a project, and conclusions regarding potential environmental consequences of project approval. It also contains public comments and responses to those public comments regarding the EIR’s data and analysis. This information is used by decision-makers while they deliberate their options regarding the “project”, in this case, the Waterford Vision 2025 General Plan Update.

This document has been modified to reflect public comments and input and re-published in its entirety as a “Final EIR”. This results in a somewhat more bulky “Final” document. It will, however, provide subsequent readers with more comprehensive background documentation and analysis for subsequent reference.

***Revisions to the Waterford Vision 2025 General Plan Update***

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The Waterford General Plan, like the Draft PEIR, is subject to public review and comment. When comments in the plan result in changes, the PEIR needs to respond to those changes. The proposed changes to the plan will be contained and discussed in the Final EIR with respect to their implications regarding this PEIR.

# *Chapter 1*

## *Summary*

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### ***1.1 Introduction***

The Waterford General Plan Update is a long-range plan intended to guide growth and development of the city through the year 2025 and beyond. The plan provides sufficient land area to accommodate anticipated urban growth needs during this period.

### ***1.2 Background and Scope***

This EIR evaluates the potential individual and cumulative environmental effects associated with implementation of policies and programs contained in the Waterford General Plan Update. Direct/primary effects of the project, as well as any foreseeable potential indirect or secondary impacts that occur through Waterford General Plan Update build-out, are evaluated within this document.

This document also serves as the framework for evaluating future development projects and planning efforts, and/or identifying where additional environmental analysis may be required. As an EIR, it cites general plan policies as mitigation for potentially significant environmental impacts, and describes the consequences of unavoidable environmental impacts. Alternative project options have been evaluated to provide a comparative analysis of the potential environmental effects. This provides decision makers with general comparative information regarding alternative courses of action.

The scope of this EIR was determined through the public “Notice of Preparation” (NOP) process (CEQA Guidelines Section 15082). Comments on the NOP received from responsible, trustee and interested agencies, resulted in focusing the EIR discussion and analysis within the 16 identified areas of potential impact described in the CEQA Guidelines.

The environmental issues to be addressed in this document, as well as specific environmental concerns under each issue heading, include:

- 1. Aesthetics:** This environmental issue focuses on the impacts of a project on scenic vistas and the overall appearance of the project in the community context. Issues of light and glare, community view-sheds, architectural compatibility with existing development or a specific site or setting are all part of the issue of “Aesthetics” as addressed within the framework of CEQA.
- 2. Agriculture:** This environmental issue focuses on the impacts of a project on farmland and agricultural productivity. Environmental concerns focus on the loss of agricultural cropland as inventoried by the Farmland Mapping and Monitoring Program of the California Resources Agency as

well as agricultural zoning and Williamson Act Contract lands. An additional area of concern is the potential changes resulting from a project that could lead to future conversion of agricultural lands to non-agricultural uses.

3. **Air Quality:** This environmental issue focuses on the impacts of a project on air quality. Issues over project consistency with applicable air quality plans, policies and regulations, increases of any pollutant for which the area has been designated as a “non-attainment” area are addressed. Additional concerns are over the exposure of sensitive receptors, such as people, to high levels of air pollution or odors.
4. **Biological Resources:** This environmental issue focuses on the impacts of a project on biological resources such as sensitive plant or animal species or its habitat, riparian habitat or the interference with the normal movements of wildlife species in the vicinity of a project. Additional concerns focus on consistency of a project with adopted plans, policies and regulations regarding wildlife, any habitat conservation plan, local wildlife preservation plans or policies, or wetlands.
5. **Cultural Resources:** This environmental issue focuses on the impacts of a project on cultural resources including, but not limited to, the adverse change to a significant historical or archaeological, resource. Other areas of concern include the potential for a project to adversely impact a unique paleontological resource or geologic feature or to disturb any human remains.
6. **Geology and Soils:** This environmental issue focuses on the impacts of natural geologic or soil conditions on a project. Specific concerns include earthquakes and seismic related hazards, or unstable soils.
7. **Hazards and Hazardous Materials:** This environmental issue focuses on the impacts of a project with respect to hazards. The creation of new hazardous conditions or activities that will result in people or property being exposed to existing hazards is the primary area of focus under this environmental issue. Hazards include, but are not limited to, hazardous materials, hazards associated with aircraft and airports or wildland fires. An additional concern is the consistency of a project with emergency response plans or emergency evacuation plans.
8. **Water Quality and Resources:** This environmental issue focuses on the impacts of a project on surface and groundwater, including compliance with water quality standards and regulations, depletion of groundwater supplies, and the pollution or degradation of water quality. Additional concerns include water related hazards such as flooding, mudflows and

similar hazards. This area of environmental concern also addresses potential project impacts on area drainage including storm-water runoff.

- 9. Land Use and Planning:** This environmental issue focuses on the impacts of a project on adopted land use, habitat conservation or natural community conservation plans. The specific focus of this area of environmental concern is potential project conflicts with established plans and policies or the potential for the project to physically divide a community area.
- 10. Mineral Resources:** This environmental issue focuses on the impacts of a project on known mineral resources of commercial or otherwise documented economic value.
- 11. Noise:** This environmental issue focuses on the impacts of a project with respect to noise or ground-borne vibration. The creation of new noise or ground-borne vibration conditions or activities that will result in people or property being exposed to existing noise or vibrations is the primary area of focus under this environmental issue.
- 12. Population and Housing:** This environmental issue focuses on the impacts of a project on population and housing, including population growth or displacement of human population or housing.
- 13. Public Services:** This environmental issue focuses on the impacts of a project on public services such as fire and police protection, schools, parks and playground and other public facilities and services.
- 14. Recreation:** This environmental issue focuses on the impacts of a project on recreation, including existing recreational facilities or the future need for new facilities that could have an impact on the environment.
- 15. Transportation and Traffic:** This environmental issue focuses on the impacts of a project on transportation systems including roads and highways, public transportation systems, pedestrian circulation and access, parking, or emergency access. Impacts can be in the form of new hazardous circulation or traffic conditions, conflict with existing plans or policies, or creation of an unacceptable traffic level on a transportation system or facility.
- 16. Utilities and Service Systems:** This environmental issue focuses on the impacts of a project on public utility systems or facilities such as water, wastewater, storm water drainage or other utility or service systems.

**Table 1.1**  
**A Summary of the Potential Adverse Physical Impacts That Can Be Expected To Result From the Implementation of the *Waterford General Plan Update*.**

<i>Environmental Impact</i>	<i>Short-Term Impacts</i>	<i>Long-Term Impacts</i>	<i>Cumulative Impacts</i>
<b>Aesthetics</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential aesthetic impact is expected to result in a significant adverse environmental impact due to project implementation.	There are no physical short term effects of the project. The general plan, as a policy document, is not likely to have any impact on the existing scenic vistas, urban aesthetic or lighting environments.	The long term effects of the project is that rural vistas that presently exist along the urban fringe of the city may be replaced with urban vistas, new development/redevelopment, in-fill development and new light sources.	The cumulative effects of the project are that the existing pattern of urban development will be expanded within the city's urban planning area or Sphere of Influence over time. It is expected that through the application of sound planning principles, as reflected in the city's development regulations, the overall urban aesthetic environment will be improved and enhanced with new development over the planning horizon.
<i>Environmental Impact</i>	<i>Short-Term Impacts</i>	<i>Long-Term Impacts</i>	<i>Cumulative Impacts</i>
<b>Agricultural Resources</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, loss of agricultural land will result in a significant adverse environmental impact due to project implementation.	Designation of areas within the city's SOI for future conversion to non-agricultural uses may result in agricultural management practices that minimize long-term productivity and maximize short-term agricultural productivity.	On the basis of this analysis, it has been determined that the conversion of "prime" agricultural soils to non-productive agricultural uses is a "significant" adverse impact resulting from the implementation of the Waterford General Plan Update. In order to achieve the goals of maintaining a compact urban form, and other types of land-use compatibility issues, mitigation that would eliminate this loss is not possible.	As previously noted, the American Farmland Trust has conducted studies that evaluate the potential population growth impacts in the central Valley through the year 2040. It is expected that population in this region will grow with an addition of 1.8 million people during this time period. As a result, a projected 360,000 acres of land, most of which will be farmland, will be converted to urban uses.  In Stanislaus County, between 2000 and 2002, a total net loss of 3,391 acres of "prime" farmland was converted to urban use and other non agricultural uses. (2002 Farmland Conversion Report) This

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			<p>conversion total represents approximately 1.3% of the 260,730 total “prime” farmland acres in Stanislaus County in 2002.</p> <p>With increased urbanization in the San Joaquin Valley, other impacts are affecting agricultural productivity. Increased population results in increased urban water use that reduces supplies that would otherwise be available for agricultural use. Increased demand for water increases water costs which, in turn, results in marginal agricultural becoming impractical.</p> <p>Increased growth also means more roadways to accommodate heavier traffic loads. Regional roadways are typically constructed on low cost agricultural lands. Increased traffic also results in increased air emissions. Ozone damages plants by reducing their synthesis of chlorophyll, causing the plant’s carbohydrate levels to fall and curtailing new tissue production. In severe exposures, plants suffer leaf burn, a condition that damages appearance and reduces the marketability of many crops.</p>
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<p><b>Air Quality</b> As a result of project analysis, based on data collected in the evaluation of the city’s proposed general plan, air quality impacts will result in a significant cumulative</p>	<p>Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on air quality in the city. The plan, however, will reaffirm policy standards by which new growth and development will be evaluated with respect to impacts on local and regional air quality.</p>	<p>Long term impacts of growth and development are expected to result in increased traffic and the development of new sources of air pollution. This increase in emissions will contribute to the regional air quality problems.</p>	<p>Development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic congestion region-wide. This impact will contribute to the regional air quality problems. Emissions from other sources will also contribute to the regional air pollution.</p>

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environmental impact due to project implementation.			
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<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<p><b>Biological Resources</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, there are no potential biological impacts that may be expected to result in a significant adverse impact to biological resources due to project implementation.</p>	<p>Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on the biological resources of the area, but will lead to improved regulation of development with respect to potential wildlife impacts.</p>	<p>Growth and development within the urban area of the city will result in some modifications of the agricultural setting which presently supports a diverse number of wildlife species. Landscaping and earth modifications will modify existing agricultural habitat, but create other habitat suitable for many local wildlife species. Long-term development trends will increase some wildlife species that are compatible with urban development and reduce the populations of other less adaptive species.</p> <p>There are potential impacts to riparian areas and areas along Dry Creek and the Tuolumne River channels. Other impact could result in the removal of large trees that are suitable nesting sites for raptors and other large bird species. Development and construction activities undertaken in accordance with the goals, policies and standards of the Waterford Vision 2025 General Plan Update, could result in diminishing the value of critical habitat of sensitive and or protected species.</p>	<p>Urbanization will result in the conversion of farmland to urban uses which will, in turn, change the nature of wildlife habitat in the area. These changes will have little impact on overall wildlife populations in the region given the extensive area surrounding the city that is maintained as farmland and wetlands that exist to the east of the city.</p>



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<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<b>Cultural Resources</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential cultural resource impact is likely to result in a significant adverse environmental impact due to project implementation.	Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on cultural resources of the area but will lead to improved regulation of development with respect to potential cultural resource impacts.	As economic growth occurs in the city, changes will be proposed that will result in modification to, and around, some of the city's historic resources. These development proposals, which will be consistent with the policies and standards of the general plan, will be reviewed and approved based upon compliance with the cultural resource requirements of state and federal law. It can be expected that some changes in cultural resources will occur as older building are upgraded to comply with modern building codes such as the requirements of the American Disabilities Act (ADA) or requirements for un-reinforced concrete structures. As a result of implementation of modern building codes, some cultural resources may be lost over time. It should be noted that this loss would most likely occur regardless of general plan implementation and the plan contains policies and standards that could minimize this expected future impact.	Modifications to historic buildings, that may occur as the city grows and develops, will be part of the changing urban landscape and will also result in aesthetic changes in the city. These changes, based on the policies and guidance provided in the general plan, may be seen as an improvement over the existing visual and cultural setting.
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<b>Geology &amp; Soils</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential geology and	Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning standards, that will be utilized in the review of development proposals and regulate normal land uses. These actions and regulations will not	Growth and development within the urban area of the city will result in some modifications of the natural setting which presently is used for agriculture and non-intensive agriculture and open-space activities. Long-term development trends will increase urban uses that will	Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. These changes will have little impact on the overall capacity of the geology and soils of the area and these soils and the underlying geologic structure of

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soils impacts are likely to result in a significant adverse environmental impact due to project implementation	have any adverse impacts on soils and geology of the area but will lead to improved regulation of development with respect to potential development proposed on unstable soils or underlying geologic structure.	be more intensive, but are likely to involve less earth disturbance than normal agricultural practices after development and construction activities have been terminated. Urban development will minimize soil loss potential caused by wind erosion on cultivated farm lands. Water erosion will be managed through the development of surface water drainage systems that channel storm water into pipelines and other erosion proof structures. With the exception of the bluffs along the Tuolumne River and Dry Creek, there are no serious geologic problems in the region and long term impacts from unstable geology are of little concern.	the region will support the type of development that is likely to occur.
<b><i>Environmental Impact</i></b>	<b><i>Short-Term Impacts</i></b>	<b><i>Long-Term Impacts</i></b>	<b><i>Cumulative Impacts</i></b>
<b>Hazards &amp; Hazardous Materials</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, the following aspects of a potential hazards impact may result in a significant adverse environmental impact due to project implementation.	Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning standards, that will be utilized in the review of development proposals and to regulate normal land uses. These actions and regulations will not have any adverse impacts on the hazard environment of the area but will lead to improved regulation of development with respect to potential hazards and hazardous materials impacts.	Growth and development within the urban area of the city will result in urban activities that will involve the storage and handling of hazardous materials that could expose people or property to a hazard. The regulatory environment, which involves federal, state and local regulations and standards, are based on scientific-based risk assessment standards and implemented to minimize the hazard risks that may occur.	Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. Agricultural chemicals, including fertilizer, pesticides and herbicides will no longer be applied in the manner that they are normally used in a commercial agricultural operation. New development, along with the use of household chemicals, and landscape maintenance, will replace traditional agricultural activities.

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<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<p><b>Hydrology &amp; Water Quality</b></p> <p>Parking areas, roadways, landscape areas and other human activities will result in the deposit of certain pollutants that can be washed into the regional surface water system and contaminate surface water supplies. Urban growth and development provided for within the general plan, could result in the location of structures within flood areas and will most likely result in the creation of impervious services that will increase the flow of flood waters during times of intense storm activity.</p>	<p>Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on the hydrology and water quality of the area, but will lead to improved regulation of development with respect to potential water quality impacts.</p>	<p>Growth and development within the urban area of the city will result in some modifications to surface water quality. Landscaping and earth modifications may result in some increased erosion and sedimentation of stream-beds and deposition of chemical nutrients into stream waters. These changes, however, are expected to be minimal and not result in a substantial degradation of surface water quality. Increased storm-water runoff can be contained within existing surface water drainage channels or new facilities designed and constructed in accordance with policies and standards established in the general plan. Long-term development trends will increase demands on groundwater resources. These impacts, however, will be regulated by the ability of the city to develop groundwater supplies.</p>	<p>The city of Waterford's annual needs for water at annexation build-out, to support a population of 17,672, would be approximately 3,300-acre feet per year (afy). As part of the State's Urban Water Management Planning Act, the city is required to prepare an Urban Water Management Plan (UWMP). The plan evaluated future domestic water needs and identified increasing urban water demand in response to projected population growth. In order to meet future water needs in the service area, new wells and groundwater recharge facilities will need to be constructed. In addition, the MID's Modesto Regional Water Treatment Plant will need to be expanded and a new water treatment facility developed.</p> <p>The wastewater treatment plant expansion plan, when complete, will provide capacity to support a planned population of approximately 19,000, producing an estimated wastewater flow of 1.4 million gallons per day. Beyond this point, the city will need to consider a new wastewater treatment plant or the possibility of joining a regional system such as the City of Turlock. This option would require construction of a new pipeline to a regional connection point, possibly up to 20 miles in length, to a regional system.</p> <p>The city recognizes that it needs to complete</p>

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			a Storm Drain Master Plan and begin to provide new and upgraded drainage facilities.
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<b>Land Use &amp; Planning</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, a potential land use or planning impact is not likely to result in a significant adverse environmental impact from plan adoption and/or implementation.	Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that is consistent with land use proposed in the general plan Land Use Element. The rezoning of these properties will not have an immediate impact on existing uses and activities in due to the fact that non-conforming uses and activities would be allowed to continue in a manner consistent with the city's zoning regulations. The changes in zoning will, however, have an immediate impact on the types of new uses and development that can be proposed in a land use category.	Adoption of the Waterford General Plan will provide for the long-term growth needs of the city and facilitate that growth by establishing policies and standards that will guide future development and the public decision making process regarding growth and development.	The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term urban pattern for this northwestern portion of the county. The urban pattern established with these two planning documents will impact agricultural productivity for the region, regional circulation and transportation needs for the future and the overall economic health of the area. Proper planning and sound public policy, such as that reflected in the general plan process mandated by state law, will assure that all physical adverse environmental impacts to land use are considered in the final decision making process.
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<b>Mineral Resources</b> The city's planning area does not contain any mining operations and is not known to contain economic deposits of any important mineral resources. Due to the fact that mineral resources are not known to exist within the city's planning area, and due to the geologic structure	Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that will most likely not be compatible with aggregate mining in the Tuolumne River corridor.	Adoption of the Waterford General Plan will lead to growth and development patterns that will be incompatible with exploitation of the sand and gravel resources in the Tuolumne River channel as it passes through the urbanized area of Waterford.	While the sand and gravel resources within the Waterford urban area are limited, the removal of this limited resource will add to the future scarcity of sand and gravel for the construction industry or result in increased cost of these resources because of higher transportation costs.

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of the region, not likely to exist, the area has not been mapped by the State Geologist in accordance with the State Mineral Land Classification system.			
<b><i>Environmental Impact</i></b>	<b><i>Short-Term Impacts</i></b>	<b><i>Long-Term Impacts</i></b>	<b><i>Cumulative Impacts</i></b>
<b>Noise</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, potential noise impacts are not likely to result in a significant adverse environmental impact due to project implementation.	Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on the noise environment other than to affirm existing policy regarding the regulation of noise sources within the city.	Long term impacts of growth and development are expected to result in increased ambient noise levels within undeveloped areas of the city. Temporary noise will result from construction and development activities associated with growth and development in the city.	Expansion of urban noise levels into areas presently used for agricultural purposes, combined with new light sources, increased traffic and the related population impacts of growth and development will change the character of the environment along the city's present urban fringe. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.
<b><i>Environmental Impact</i></b>	<b><i>Short-Term Impacts</i></b>	<b><i>Long-Term Impacts</i></b>	<b><i>Cumulative Impacts</i></b>
<b>Population &amp; Housing</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, there are no potential population and housing impacts that are expected to result in a significant adverse environmental impact due to project implementation.	Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that is consistent with land use proposed in the general plan Land Use Element. The rezoning of these properties will not have an immediate impact on existing residential uses due to the fact that non-conforming uses and activities would be allowed to continue in a manner consistent with the city's zoning regulations. The changes in zoning will, however, have an immediate impact on the types of new	Adoption of the Waterford General Plan will provide for the long-term growth needs of the city and facilitate that growth by establishing policies and standards that will guide future development and the public decision making process regarding growth and development..	The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term pattern for the distribution of population and housing opportunities for this northwestern portion of the county. The population and residential pattern of development established with these two planning documents will impact agricultural productivity for the region, regional circulation and transportation needs for the future and the overall economic health of the area. Proper planning and sound public policy, such as reflected in the general plan process mandated by state law, will

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	residential development that can be proposed in a land use category.		assure that all physical adverse environmental impacts to population and housing are considered in the final decision making process.
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<b>Public Services</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential public services impacts are likely to result in a significant adverse environmental physical impact due to project implementation.	Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on public services in the city. Implementation of the plan will result in the need for new public facilities.	<p>Long term impacts of growth and development are expected to result in a balance between increased need for public service facilities and programs. Planned increases in growth and development will generally result in the increase of public service demands, and new facilities will be planned by the city, county and other public service entities such as the Modesto Irrigation District, the Waterford Unified School District, the City of Modesto's water service facilities in the city of Waterford, the Stanislaus Consolidated Fire Protection District and others in response to this need.</p> <p>The law provides various fee mechanisms that can be implemented by local governments to construct new service facility needs created by growth. Each of these public entities presently have fee programs in place as provided by law. As part of the capital improvement program (CIP) and normal governmental budget management processes, these fees are periodically reviewed and updated to reflect updated needs assessments, development/construction costs and operating costs of facilities and services.</p>	<p>Growth in the public sector is expected to mirror growth and development in the private sector of the city. Development impacts resulting from this growth, as it relates to physical impacts on the environment, are accommodated within the context of this document and normal development/construction permit review provisions of the city.</p> <p>Cumulative issues, with respect to public services, fall in the areas of supporting infrastructure necessary to operate and maintain public facilities and provide public services. In the case of Schools, circulation and transportation needs of school facilities along with public utilities such as water, sewer and storm drain system.</p> <p>These issues can be further complicated by the inability of a school district to develop new school facilities in a timely manner to respond to increased school enrollment. To address the overcrowded conditions schools may need to transport students to other schools within the district. In addition, the required private vehicle transportation of students to address the overcrowded conditions of schools; and the added required private and public vehicles of the teachers and employees of the District that would be</p>

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			<p>required as a result of the students generated by growth are possible secondary (cumulative) impacts resulting from lack of adequate school facilities.</p> <p>Another cumulative aspect of the inability of public service providers to develop adequate facilities is the “social” and “economic” costs on service populations. As an example, overcrowded schools have the potential to create social and psychological impacts on students leading to behavioral problems requiring law and school enforcement on and off campus.</p>
<i><b>Environmental Impact</b></i>	<i><b>Short-Term Impacts</b></i>	<i><b>Long-Term Impacts</b></i>	<i><b>Cumulative Impacts</b></i>
<p><b>Recreation</b> Updating the general plan may result in future development within the city's sphere of influence, thereby creating an increase in the demand for recreation facilities and services. The city's recreation facilities will require enhancement to accommodate such increases. Other parks, playgrounds, ball fields and related recreation facilities will need to expand to accommodate new growth and</p>	<p>Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on recreation resources in the city.</p>	<p>Long term impacts of growth and development are expected to result in a balance between increased need for recreation facilities and programs and increases in facilities and services.</p>	<p>Growth in recreation facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.</p>

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development.			
<b><i>Environmental Impact</i></b>	<b><i>Short-Term Impacts</i></b>	<b><i>Long-Term Impacts</i></b>	<b><i>Cumulative Impacts</i></b>
<b>Transportation &amp; Traffic</b> Increased traffic from growth in Waterford will contribute to regional traffic congestion which is expected to become significant unless sufficient resources are found to fund regional improvements. This is determined to be a "Significant" Impact.	Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on transportation and traffic in the city. The plan, however, will establish policy standards by which new growth and development will be evaluated with respect to impacts on the city's circulation and transportation system.	Long term impacts of growth and development are expected to result in a balance between increased need for transportation service and facility development and increased traffic. Increased growth in the city and the region will result in the need to build new roadways and improve existing roadways and intersections. In the long-term (2030) there will be a need to add two-additional lanes to the Tuolumne River Bridge on the Hickman Road section of "F" Street.	Development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic impacts region-wide. At present, resources are not available to address these impacts.
<b><i>Environmental Impact</i></b>	<b><i>Short-Term Impacts</i></b>	<b><i>Long-Term Impacts</i></b>	<b><i>Cumulative Impacts</i></b>
<b>Utilities &amp; Service Systems</b> As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential utility impacts are likely to result in a significant adverse environmental impact due to project implementation.	Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on utilities in the city.	Long term impact of growth and development are expected to result in a balance between increased need for utility facilities and programs and increases in facilities and services.	Improvement and expansion of public utility facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.



### ***1.3 Summary of Environmental Impacts***

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Table 1.1 contains a summary of the potential adverse physical impacts that can be expected to result from the implementation of the Waterford Vision 2025 General Plan Update.

### ***1.4 Significant Environmental Impacts***

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Section 15126.2 (a) *The Significant Environmental Effects of the Proposed Project.* of CEQA Guidelines state:

“An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.”

The Guidelines go on to state that “the discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services.

The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected. For example, an EIR on a subdivision astride an active fault line should identify as a significant effect the seismic hazard to future occupants of the subdivision. The subdivision would have the effect of attracting people to the location and exposing them to the hazards found there.”

**Table 1.2** contains a list of significant adverse physical impacts that can be expected to result from the implementation of the Waterford Vision 2025 General Plan Update and an analysis of the potential mitigation measures that could be applied to reduce these impacts to a less than significant level. A complete discussion of these, and other environmental issues, is contained in Chapter 3 of this environmental impact report.

**Table 1.2**  
**A List of Significant Adverse Physical Impacts That Can Be Expected To Result From the Implementation of the *Waterford Vision 2025 General Plan Update*.**

<i>Area of Potential Environmental Impact</i>	<i>Environmental Impacts</i>	<i>Mitigation Measures</i>	<i>Level of Significance After Mitigation</i>
<b>Agricultural Resources</b>	Expansion of the city's urban area will result in the loss of "Prime" cropland in the region; this loss cannot be mitigated. Overall adverse impacts of projected population growth on the agricultural resources in the region would be reduced as a result of project implementation. Implementation of the Waterford Vision 2025 General Plan Update will accommodate projected future increases in people and jobs in the Waterford urban area in a manner that produces the least amount of loss of productive agricultural land. Potential adverse impacts are deemed to be minimized to the maximum degree possible as a result of proposed plan implementation policies. As a result of the analysis of potential project impacts on agriculture, it can be concluded that the project will convert "prime" soils to non-agricultural production uses and result in the need to cancel Williamson Act contracts on productive agricultural land. This is considered a "significant" and adverse impact under CEQA.	Beyond the policies of the general plan, there is no practical mitigation that can be imposed that would mitigate the adverse impacts on Agriculture in the Waterford urban area.	Expansion of the city's urban area will result in the loss of "Prime" cropland in the region; this loss cannot be mitigated. Overall adverse impacts of projected population growth on the agricultural resources in the region would be reduced as a result of project implementation. Implementation of the Waterford Vision 2025 General Plan Update will accommodate projected future increases in people and jobs in the Waterford urban area in a manner that produces the least amount of loss of productive agricultural land. Potential adverse impacts are deemed to be minimized to the maximum degree possible as a result of proposed plan implementation policies. As a result of the analysis of potential project impacts on agriculture, it can be concluded that the project will convert "prime" soils to non-agricultural production uses and this is considered a "significant" adverse impact under CEQA.

**Table 1.2 Continued**  
**A List of Significant Adverse Physical Impacts That Can Be Expected To Result From The  
Implementation Of The Waterford Vision 2025 General Plan Update.**

<b>Area of Potential Environmental Impact</b>	<b>Environmental Impacts</b>	<b>Mitigation Measures</b>	<b>Level of Significance After Mitigation</b>
<b>Air Quality</b>	<p>Development activities associated with implementation of general plan update are expected to encourage new job-producing tourism, commercial, and industrial development in the city of Waterford. Consequently, additional vehicle trip generation and resultant mobile source emissions of air pollutants may occur. New industries accommodated in the city may produce air or liquid waste and/or emissions with unpleasant odors.</p> <p>The San Joaquin Valley is designated as non-attainment under applicable federal and state standards for ozone and PM10/2.5 emissions. Long-term growth throughout the Valley, including planned growth in the city of Waterford, will contribute to a cumulative net increase in this air pollution. This is considered a “significant” and adverse impact under CEQA.</p>	<p>Policy guidance incorporated into the general plan minimizes potential impacts to regional air quality.</p> <p>Mitigation of increased impacts on air quality within Waterford’s planning area is typically addressed through the implementation of the development review process and implementation of the SJVUAPCD Indirect Source Fee Program (Rule 9551). The city will participate in the district’s impact fee program and require development mitigation as may be required by the district.</p> <p>With the implementation of the Air District’s impact fee programs, rules, standards and regulations, no mitigation measures are feasible or proposed. With the implementation of these measures, however, the cumulative impacts of growth and development in the city and the region will result in a significant and unmitigable impact.</p>	<p>It can be expected that the growth resulting from the implementation of the Waterford General Plan will contribute to the significant regional air quality problem. Beyond the policies of the general plan, there is no practical mitigation that can be imposed that would mitigate the adverse impacts on Air Quality in the Waterford urban area or the region. As a result of the analysis of potential project impacts on air quality, it can be concluded that the project will contribute to the cumulative deterioration of air quality as an overall consequence of regional growth and this is considered a “significant” adverse impact under CEQA.</p>

**Table 1.2 Continued**  
**A List of Significant Adverse Physical Impacts That Can Be Expected To Result From The  
Implementation Of The Waterford Vision 2025 General Plan Update.**

<b>Area of Potential Environmental Impact</b>	<b>Environmental Impacts</b>	<b>Mitigation Measures</b>	<b>Level of Significance After Mitigation</b>
<b>Transportation &amp; Traffic</b>	<p>Long term impacts of growth and development are expected to result in a balance between increased need for transportation service and facility development and increased traffic. Increased growth in the city and the region will result in the need to build new roadways and improve existing roadways and intersections. In the long-term (2030) there will be a need to add two additional lanes to the Tuolumne River Bridge on the Hickman Road section of “F” Street.</p> <p><b><i>Cumulative Impacts:</i></b> Development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic impacts region-wide. At present, resources are not available to address these impacts.</p>	<p>As part of the city’s development review program, individual development projects are typically required to prepare traffic studies to evaluate the project’s impact on traffic. Larger projects typically prepare more extensive studies that may evaluate regional traffic issues. As a result of these studies, specific project level mitigation measures are required as part of the project’s conditions of approval.</p> <p>Mitigation for the cumulative impact of increased traffic congestion within the Waterford planning area is beyond the ability and jurisdiction of the city. The city will participate in development impact fee programs for both local (city) improvements and a regional fee program.</p>	<p>Until a plan is developed and fully funded to address the regional traffic problems it can be expected that the growth in traffic resulting from the implementation of the Waterford General Plan will contribute to a significant cumulative regional circulation problem. As a result of the analysis of potential project impacts on transportation and traffic, it can be concluded that the project will contribute to the cumulative increase in traffic and congestion as an overall consequence of regional growth and this is considered a “significant” adverse impact under CEQA.</p>

### ***1.5 Project Alternatives to Reduce Significant Effects***

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Chapter 8 contains a discussion of the potential alternatives to the project that can reduce the “significant impacts” of project implementation. As discussed in this Chapter, the impacts to Air Quality and Traffic are regional in nature and cannot be minimized to a level deemed to be “less than significant” through the implementation of an alternative strategy.

With respect to Agricultural resources, the only practical alternative is to alter the proposed land use plan to avoid important and “prime” farmlands. All available alternative land use strategies, however, will result in creating other impacts that could be “significant” within the framework of CEQA.

Impacts on Air Quality and Traffic & Transportation result from cumulative regional impacts resulting from growth and development in the region. Alternatives that are feasible, within the framework of the general plan would:

1. Not accomplish the goals and objectives of the general plan, and
2. Not appreciably reduce the cumulative impacts on Air Quality or Traffic in the region.

As a result of this analysis, it was determined that the proposed project is the most practical solution to identified environmental problems.

### ***1.6 Areas of Controversy***

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There have been no areas of environmental controversy identified as part of the CEQA review process to date. There are no conflicts among experts with respect to expected environmental consequences of the project nor are there any controversies with respect to potential mitigation or alternative strategies.

As the City of Waterford Vision 2025 General Plan Update is facing a long public review process, and the fact that proposed general plan policies and standards are being challenged by individual land owners in the area, it is expected that these issues will translate into environmental “controversies” during the course of the public review and comment process.

### ***1.7 Issues to be Resolved***

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There are no planning or environmental issues that need to be resolved at this time. Following public review and comment periods, however, there may be a need to examine other project alternatives.

## Chapter 2

# Project Description

### 2.1 Introduction

Section 15124 of the California Environmental Quality Act (CEQA) Guidelines require that a project description contain specific information that can be used consistently throughout an EIR. This consistency is critical to ensure that various environmental aspects of the project are adequately evaluated.

### 2.2 Environmental Setting

**Chapter 3** contains detailed environmental setting discussions organized around specific topics of concern. The following setting discussion focuses on general environmental characteristics of the project.

**2.2.1 Regional Location.** The city of Waterford is located on the eastern side of semi-rural portion of Stanislaus County in the heart of the central San Joaquin Valley. The city is located along the Tuolumne River and Highway 132, which leads to Yosemite National Park and the Sierra Nevada mountains. It is approximately 15 minutes driving distance to the east of the City of Modesto, and in close proximity to the communities of Oakdale and Turlock. Known as the "Gateway to Recreation" the city plays host to the thousands of people who travel through on their way to the many recreational opportunities in the area.

**2.2.2 The City of Waterford.** Waterford is the eighth largest city in Stanislaus County with a population that has grown steadily from 2,683 in 1980 to over 8,000 today. Originally settled in 1857 by William W. Baker the town was originally named Bakersville. Mr. Baker homesteaded 160 acres just south of the river near the Appling Road Bridge.

In 1870 the post office was apparently having trouble delivering the mail as the name was being confused with other places (at the time the only other similarity was Bakersfield) so the post office suggested the name be changed. So in 1870 the name was changed to Waterford.

The city is 98 miles east of San Francisco, 80 miles south of Sacramento, 90 miles north of Fresno, and 90 miles west of Yosemite. Winter temperatures range from the mid 40's to the high 60's; summer temperatures range from the 50's to the 90's. The county's average rainfall is 12.00 inches per year.

**2.2.3 Location; The San Joaquin Valley & Stanislaus County** The city of Waterford is located in the eastern portion of Stanislaus County. To the west of the city is the City of Modesto metropolitan area. To the east are the foothills of the Sierra Nevada. The county of Stanislaus is bounded on the north by San Joaquin county, on the east by Tuolumne county, on the south by Merced county, and on the west by Santa Clara county.

Stanislaus County contains about 1,494 square miles of land area. With a 2005 population estimated at 504,482, the overall population density of the county is approximately 338 people per square mile.

The city of Waterford contains approximately 1,108 acres of land or approximately 1.7 square miles. The city's proposed new Sphere of influence contains approximately 1,600 acres and the total future long term growth area of the city includes an additional area of around 4,500 acres for a total planning area of around 11.3 square miles.

**2.2.4 General Physical Setting** The city of Waterford is located in the eastern portion of Stanislaus County, approximately 13 miles east of Modesto and 11 miles northeast of Turlock. The city is bordered on the south by the Tuolumne River, on the north by the Modesto Irrigation District (MID) Modesto Main Canal, on the west by Eucalyptus Avenue, and on the east by a parcel boundary south of MID Lateral Connection No. 8.

The urban expansion area for the city comprises approximately 1,610 acres of agricultural land surrounding the city's existing boundary to the north, east, and west. Terrain in the western half of the study area is very flat, with the exception of the southwestern corner of the study area that straddles the cliff north of the Tuolumne River. Terrain in the eastern half of the area is more varied, rising from 160 feet above sea level to around 200 feet above sea level in the eastern and northeastern sections of the study area.

**2.2.5 Growth Setting** The Waterford General Plan is being proposed in response to growth demands in the region. As discussed extensively in Section 3.10 (Land Use) and Section 3.13 (Population & Housing) the city of Waterford could grow in population to a level between 14,500 and 18,600 people by 2025 and between 19,000 and 28,200 people in 2040. At the same time, total population in Stanislaus County could approach one million people by 2040. Most of that population growth is expected to occur in the established urban (municipal) areas; some growth is expected to occur in the unincorporated portions of the county.

Along with this population growth will be corresponding growth in commercial and industrial development along with the infrastructure (streets, highways, utilities, and public support facilities) to support this residential growth.

### ***2.3 Statement of Project Goals & Objectives***

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The broad purpose of the general plan is to express policies that will guide decisions on future growth, development, and conservation of resources through the year 2025, in a manner consistent with the goals and quality of life desired by the city's residents. The plan update takes into consideration the changes in conditions and circumstances that have occurred since the plan was last updated.

The update also assures that the city's general plan reflects the community's aspirations as reflected in the series of "Visioning" sessions held with residents of Waterford. Furthermore, the update is intended to express policies in a manner and format that will simplify their interpretation, administration, and application to individual development decisions.

Pursuant to State law there are seven required elements of a general plan: Land Use, Housing, Open Space, Conservation, Circulation, Safety and Noise. Additionally, the city has prepared, and intends to adopt, four optional elements addressing Urban Expansion, Public Facilities and Services, Urban Design and Sustainable Development. All elements, with the exception of the

Housing Element, are being revised and updated in order to bring the general plan up to contemporary standards in accordance with California planning and zoning law.

**2.3.1 Plan Objectives.** The Waterford General Plan contains a comprehensive set of goals and policies that establish the planning philosophy that will direct future city growth. To achieve its purpose of providing for future population growth, the plan contains land use policies that provide adequate area for housing, employment and commercial activities. The plan also contains policies and standards for the provision of public services and infrastructure necessary to support future population growth.

**2.3.2 Physical Impacts of Plan Implementation.** An Environmental Impact Report, according to law, must address the “physical” impacts of a project. As a project, a general plan update establishes goals, policies and standards that guide future growth and development, but does not have any direct “physical” impacts. The secondary impacts of plan implementation, however, are likely to have substantial impacts on the physical environment.

In order to maximize the utility of this program EIR, the focus of analysis is on the secondary impacts of plan adoption; the implementation of the plan. In addition to these implementation impacts, there will be additional impacts resulting from public construction activities undertaken to build the necessary infrastructure to support growth and expansion of the city.

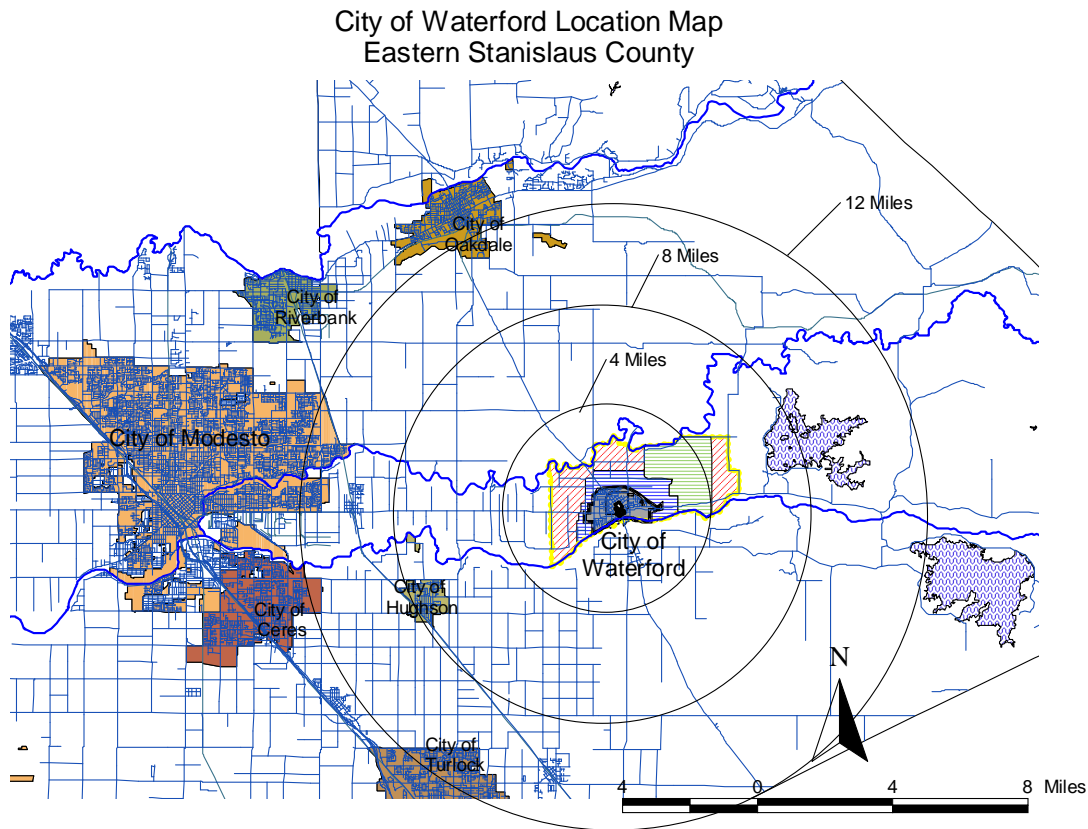
Specific construction activities include building sewer, water, storm drain and street and highway infrastructure necessary to support development of approximately 1,610 acres of land outside the present city limits. The city has adopted several infrastructure plans, including for storm water, sewer, storm drain and waste water treatment facilities that are an integral part of the city’s general plan.

Non-public implementation actions include development of residential, commercial and industrial improvements, many of which will require specific discretionary approval from the city and other public agencies.

It is anticipated that each of these “implementation” actions will result in the need for subsequent environmental studies to identify site specific impacts. It is further expected that this subsequent environmental analysis will be used as a supplement to this program environmental impact report.



**Exhibit 2.1**  
**Stanislaus County-Waterford Regional Map.**



Beyond the physical needs of future population growth, the plan contains design and open space provisions. These provisions provide an important element to the planning process. Future growth and development is expected to contribute to the overall well-being of the community while preserving and enhancing the city's present quality of life.

The Waterford Vision 2025 General Plan Update is a long-range plan intended to guide growth and development of the city through the Year 2025 and beyond. During this period, the population of Waterford is expected to grow from its present (2005) level of 8,000 to 14,500.

The City of Waterford General Plan Update aims to achieve the following Goals and Policies:

**Urban Expansion** addresses the location and timing of new development in the city's planned expansion area.

***Vision:*** *A community whose growth and expansion occurs in such a manner as to enhance the existing community and preserves and maintains Waterford's rural small community charm.*

### ***Goal Area A: Urban Expansion***

#### **GOALS**

- **A Compact Urban Form**
- **An Effective Agriculture/Urban Area Interface**
- **Efficient Urban Expansion**

#### **POLICIES**

- UE-1** The city shall promote annexation of developed areas within the city's Sphere of Influence.
- UE-2** The city shall designate areas for new urban development which reflect the physical characteristics and environmental constraints of the planning area.
- UE -3** The city shall accommodate urban development on non-prime soils whenever feasible.
- UE -4** The city shall control the timing, density, and location of new land uses within its urban expansion boundaries to reflect the availability of urban and utility services.
- UE -5.** The city shall extend Sphere of Influence boundaries relative to all major streets and highways in the Waterford Planning Area.

### ***Land Use***

***Vision:*** *A community with a mixture of land uses that support commercial, industrial, residential and other land uses that are logical with respect to meeting the economic, social and individual needs of the city's residents and that do not create problems or incompatibilities with neighboring uses, or diminish a neighbors right to use their property.*

### ***Residential & Neighborhood Goals, Policies***

### ***Goal Area L-1: Residential & Neighborhood Development***

#### **GOALS**

- **Housing Opportunities in Balance with Jobs Created in the Waterford Urban Area**
- **A Wide Range of Residential Densities and Housing Types in the City**
- **Preservation and Enhancement of Existing Neighborhoods**
- **Quality Residential Environments**
- **Pedestrian-Friendly Residential Environments**
- **A Sense of Community**

#### **POLICIES**

- L-1.1** Promote balanced development which provides jobs, services and housing.
- L-1.2** Encourage a diversity of building types, ownership, prices, designs, and site plans for residential areas throughout the city.
- L-1.3** Encourage a diversity of lot sizes in residential subdivisions.
- L-1.4** Conserve residential areas that are threatened by blighting influences.
- L-1.5** Protect existing neighborhoods from incompatible developments.
- L-1.6** Continue to pursue quality single-family and higher density residential development.
- L-1.7** Encourage the location of multi-family developments on sites with good access to transportation, shopping, and services.
- L-1.8.** Create livable and identifiable residential neighborhoods.

***Commercial & Industrial Goals, Policies***

***Goal Area L-2: Economic & Business Development***

**GOALS**

- **Increased Employment Opportunities for the Citizens of Waterford**
- **A Diverse and Balanced Waterford Economy**
- **Preservation/Enhancement of the City's Economic Base**
- **High Quality Industrial Areas**
- **Ready Access to Commercial Services Throughout the City**
- **A Revitalized Downtown Area**

**POLICIES**

- L-2.1** Encourage development of appropriate commercial and industrial uses throughout the city.
- L-2.2** Locate new or expanded industrial/business parks in appropriate areas.
- L-2.3** Promote the retention and expansion of existing industrial and commercial businesses.
- L-2.4** Provide a range of services adjacent to and within industrial/business park areas to reduce auto trips.
- L-2.5** Maintain attractive industrial/business park areas.
- L-2.6** Provide neighborhood commercial centers in proportion to residential development in the city.
- L-2.7** Locate and design new commercial development to provide good access from adjacent neighborhoods and reduce congestion on major streets.
- L-2.8** Encourage a mixture of uses and activities that will maintain the vitality of the downtown area.
- L-2.9** Require new development to maintain at least a jobs-housing balance of at least 0.5 jobs per new housing unit.

***Transportation & Circulation***

***Vision:*** *A community with a transportation and circulation system that is adequate to meet the economic, social and individual needs of the city's residents while promoting safety, efficiency and economy for a mobile population and that does not result in excess pollution or congestion.*

***Goal Area T-1: Streets and Roads***

**GOALS**

- **An Integrated Road System that is Safe and Efficient**
- **A Circulation System that is Convenient and Flexible**
- **A Circulation System that Minimizes Adverse Impacts Upon the Community**

**POLICIES**

- T-1.1** Design streets consistent with circulation function and affected land uses.
- T-1.2** Coordinate circulation and transportation planning with pertinent regional, state and federal agencies.
- T-1.3** Design major roads to maximize efficiency.
- T-1.4** Promote traffic safety.
- T-1.5** Minimize unnecessary travel demand on major streets.
- T-1.6** Minimize adverse impacts on the environment from existing and proposed road systems.
- T-1.7** Minimize street system impacts on residential neighborhoods and other sensitive land uses.

### ***Goal Area T-2: Alternative Transportation***

#### **GOALS**

- **An Efficient and Comprehensive Public Transit System**
- **A Comprehensive System of Safe and Convenient Bicycle Routes (Within the Community and Throughout the Urban Area)**
- **A Comprehensive System of Safe and Convenient Pedestrian-ways**

#### **POLICIES**

- T-2.1** Support and enhance the use of public transit.
- T-2.2** Support a safe and effective public transit system.
- T-2.3** Encourage the use of bicycles as alternative transportation.
- T-2.4** Provide convenient bicycle support facilities to encourage bicycle use.
- T-2.5** Maintain and expand the community's existing bicycle circulation system.
- T-2.6** Maintain a pedestrian-friendly environment.
- T-2.7** Improve planning for pedestrians.
- T-2.8** Ensure that new development provides the facilities and programs that improve the effectiveness of transportation control measures and congestion management programs.

### ***Goal Area T-3: Vehicle Trip Reduction***

#### **GOALS**

- **Living Environments which Encourage People to Use a Variety of Transportation Alternatives**
- **A Compact Urban Design for New Growth Areas**
- **Self-sustaining, Mixed-Use, Pedestrian-Friendly Urban Centers**

#### **POLICIES**

- T-3.1** Create land use patterns that will encourage people to walk, bicycle, or use public transit for an increased number of their daily trips.
- T-3.2** Encourage in-fill development and a compact urban form.
- T-3.3** Promote site designs that encourage walking, cycling, and transit use.
- T-3.4** Locate and design new commercial developments to provide good access from adjacent neighborhoods and reduce congestion on major streets.

### ***Public Services & Facilities***

***Vision:*** *A community with a public service delivery system that is efficient, effective and economical and that provides a range of public services adequate to meet the economic, social and individual needs of the city's residents.*

### ***Waterford Public Services and Facilities***

#### **GOALS**

- **Adequate Public Services and Facilities to Meet the Needs of the City's Residents**
- **Cost-Effective Public Service Delivery Systems and Facilities**
- **Public Services and Facilities Standards that are Applied Uniformly Throughout the City**

#### **POLICIES**

- PF-1.1** Establish and maintain adequate & uniform municipal infrastructure and service standards.
- PF-1.2** Establish and maintain a program for cost effective operation and maintenance of municipal services and facilities to meet community needs.
- PF-1.3** Establish and maintain a program for cost effective expansion of municipal services and facilities to meet future community growth needs.
- PF-1.4** Establish and maintain facility maintenance programs that assure maximum utilization of capital equipment and facilities.
- PF-1.5** Assure that expansion of the city results in the enhancement of municipal services and facilities within Waterford without increasing costs to the existing city.

***Goal Area PF-2: Open Space for Outdoor Recreation***

**GOALS**

- **PF-High Quality Recreational Open Space**
- **PF -Adequate Public Recreation Facilities**

**POLICIES**

- PF -2.1** Provide high-quality park and open space facilities to serve the needs of a growing population.
- PF -2.2** Maintain the city's existing high-quality open space facilities.
- PF -2.3** Develop a diverse and integrated system of park facilities throughout Waterford.

***Urban Design***

***Vision:*** A community that retains its rural small-town flavor with a central downtown surrounded by residential and other types of supporting development; a community whose appearance and overall architectural character promotes and reflects its unique rural setting along the Tuolumne River and its “gateway” status to the recreation areas to the east of the city.

***Goal Area Urban Design***

**GOALS**

- **A Rural Community with a Unique Identity**
- **A Well Defined Urban Center**
- **An Integrated Community-Well Connected**

**POLICIES**

- UD-1** Promote urban continuity & connection.
- UD-2** Promote neighborhood conservation & development.
- UD-3** Provide for a vibrant downtown center.
- UD-4** Guide the development of commercial strips.
- UD-5** Guide the development of large-scale commercial & industrial projects.
- UD-6** Guide the development of new residential neighborhoods.
- UD-7** Guide development of mixed-use neighborhood core areas.
- UD-8** Promote urban landmarks & public art.
- UD-9** Utilize Neo-Traditional design concepts in neighborhood revitalization programs.
- UD-10** Maintain and enhance the unique community appearance of Waterford.

***Open Space & Conservation***

***Vision:*** A community that values, protects and conserves its valuable open space & other resources, with lands that benefit local residents and support and enhance the environment and economic base of the region.

***Goal Area A: Open Space for the Preservation of Natural Resources***

**GOALS**

- **Maintain Waterford’s Biological Resources**
- **Maintain a High-Quality, Expanding Urban Forest**
- **Preserve Scenic Corridors and Resources**
- **Improve and Enhance Water Quality**

**POLICIES**

- OS-A.1** Identify and preserve wildlife habitats that support rare, endangered, or threatened species.
- OS-A.2** Preserve and enhance Tuolumne River and Dry Creek in their natural state throughout the planning area.
- OS-A.3** Promote the protection and enhancement of designated scenic routes.
- OS-A.4** Improve and expand the city’s urban forest.

**OS-A.5** Preserve and enhance water quality.

***Goal Area OS-B: Open Space for the Managed Production of Resources***

**GOALS**

- **Maintain and Improve Regional Agricultural Productivity**

**POLICIES**

**OS-B.1** Protect agricultural areas outside the city's urban growth area from urban impacts.

**OS-B.2** Relieve pressures on converting areas containing large concentrations of "prime" agricultural soils to urban uses by providing adequate urban development land within the Waterford urban growth area.

***Goal Area OS-C: Open Space for Outdoor Recreation***

**GOALS**

- **High Quality Recreational Open Space**
- **Adequate Public Recreation Facilities**
- **Comprehensive Urban Trail and Bike Path System**

**POLICIES**

**OS-C.1** Provide high-quality park and open space facilities to serve the needs of a growing population.

**OS-C.2** Maintain and expand the city's bikeway and trail system.

***Goal Area OS-D: Open Space for Public Health and Safety***

**GOALS**

- **Safe Environment For Waterford's Citizens.**

**POLICIES**

**OS-D.1** Preserve open space areas which are necessary to maintaining public health and safety.

***Goal Area OS-E: Conservation of Resources***

**GOALS**

- **Conserve Water Resources**
- **Preserve and Protect Soil Resources**

**POLICIES**

**OS-E.1** Promote water conservation throughout the planning area.

**OS-E.2** Protect soil resources from the erosive forces of wind and water.

***Sustainable 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.

***Goal Area SD-1: Air Quality***

**GOALS**

- **Clean Air, Free of Toxic Substances and Odor**
- **Clean Air with Minimal Particulate Content**
- **Effective and Efficient Transportation Infrastructure**
- **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

<p>quality.</p> <p><b>SD-1.5</b> Provide public facilities and operations which can serve as a model for the private sector in implementation of air quality programs.</p> <p><b>SD-1.6</b> Reduce emissions of PM<sub>10</sub> and other particulates with local control potential.</p>
<b><i>Goal Area 2: Cultural Resources</i></b>
<p><b>GOALS</b></p> <ul style="list-style-type: none"> <li>■ <b>A Diverse And Rich Historic and Cultural Resource Environment</b></li> <li>■ <b>A Long-Term Community Historic Preservation/Improvement Program</b></li> </ul>
<p><b>POLICIES</b></p> <p><b>SD-2.1</b> Identify and preserve the city's archaeological resources.</p> <p><b>SD-2.2</b> Identify and preserve the city's historic and cultural resources.</p> <p><b>SD-2.3</b> Develop and promote financial incentive programs for historic preservation efforts.</p>
<b><i>Goal Area 3: Energy Resources</i></b>
<p><b>GOALS</b></p> <ul style="list-style-type: none"> <li>■ <b>Sustainable Energy Resource Use in the City of Waterford</b></li> <li>■ <b>Application of “Green” or High Performance Building Technology</b></li> </ul>
<p><b>POLICIES</b></p> <p><b>SD-3.1</b> Promote the use of solar energy technology.</p> <p><b>SD-3.2</b> Encourage the use of energy conservation features and low-emission equipment for all new residential and commercial development.</p>
<b><i>Goal Area 4: Agricultural Resources</i></b>
<p><b>GOALS</b></p> <ul style="list-style-type: none"> <li>■ <b>A Sustainable Agricultural Economy</b></li> <li>■ <b>Preserve High Value Farmland</b></li> </ul>
<p><b>POLICIES</b></p> <p><b>SD-3.1</b> Preserve the city's Prime agricultural soil resources.</p>
<b><i>Goal Area 5: Sustainable Design</i></b>
<p><b>GOALS</b></p> <ul style="list-style-type: none"> <li>■ <b>Sustainable “Green” Buildings in the City of Waterford</b></li> <li>■ <b>Application of “Green” or High Performance Building Technology</b></li> </ul>
<p><b>POLICIES</b></p> <p><b>SD-5.1</b> Use of sustainable or “green” building principles in site design and layout.</p> <p><b>SD-5.2</b> Use of sustainable or “green” building principles to promote water conservation.</p> <p><b>SD-5.3</b> Use of sustainable or “green” building principles to promote energy conservation.</p> <p><b>SD-5.4</b> Use of sustainable or “green” building principles to promote interior building environmental quality.</p> <p><b>SD-5.5</b> Use of sustainable or “green” building principles to assure use of efficient building materials.</p> <p><b>SD-5.6</b> Use of sustainable or “green” building principles to minimize waste generation.</p>

## ***Housing***

***Vision:*** *A community that values its diversity and provides for the varied housing needs of its residents.*

<b><i>Goal Area: Housing</i></b>
<p><b>GOALS</b></p> <ul style="list-style-type: none"> <li>■ <b>Develop Through Public and Private Channels Sufficient New Housing to Ensure the Availability of Affordable Housing for All Households in Waterford</b></li> <li>■ <b>Manage Housing and Community Development in a Manner That Will Promote the Long-Term Integrity and Value of Each New Housing Unit and the Environment in Which it is Located</b></li> <li>■ <b>Provide for a Choice of Housing Locations for All Residents</b></li> </ul>

- **Maintain and Improve the Quality of the Existing Housing Stock and the Neighborhoods in Which it is Located**
- **Promote Equal Access to Safe and Decent Housing for All Economic Groups**
- **Promote Energy Conservation Activities in All Residential Neighborhoods**

#### **POLICIES**

- H-1.a** Advocate and support proposed federal and state actions that will create a positive, stable climate for housing production.
- H-1.b** Wherever appropriate, facilitate the use of federal or state programs which can assist in development of new housing consistent with identified city-wide housing needs and adopted local plans and programs.
- H-1.c** Support efforts that serve to coordinate and improve the ability of the housing delivery system to effectively respond to local housing needs.
- H-1.d** Accommodate and encourage development of a full range of housing types within the city.
- H-1.e** Maintain a sufficient inventory of developable land to accommodate timely development of needed new housing supplies.
- H-1.f** Encourage and participate in efforts designed to achieve economies and efficiencies which will facilitate the production of quality, affordable housing.
- H-1.g** Promote balanced, orderly growth to minimize unnecessary developmental costs that add to the cost of housing.
- H-2.a** Provide that new housing be constructed in accordance with design standards that will ensure the safety and integrity of each housing unit.
- H-2.b** Encourage application of community design standards that will provide for the development of safe, attractive, and functional housing developments.
- H-2.c** Manage new residential development within the context of a planning framework designed to minimize adverse impacts on the area's natural resource base and overall living environment.
- H-3.a** Review and update Waterford's General Plan on an annual basis to ensure that growth trends are accommodated.
- H-3.b** Encourage the development of various types of housing opportunities in all residential areas.
- H-3.c** Establish density bonus procedures that encourage the provision of affordable housing.
- H-4.a** Monitor the quality of the housing stock to maintain a current inventory of all substandard housing units.
- H-4.b** Provide for the removal of all unsafe, substandard dwellings that cannot be economically repaired.
- H-4.c** Encourage development of sound new housing on vacant land within existing neighborhoods that have the necessary service infrastructure.
- H-4.d** Support and encourage all public and private efforts to rehabilitate and improve the existing housing stock.
- H-4.e** Promote public awareness of the need for housing and neighborhood conservation.
- H-4.f** Support actions which foster and maintain high levels of owner-occupancy, particularly in those neighborhoods in which housing quality is declining.
- H-4.g** Promote development of public policies and regulations that provide incentives for proper maintenance of owner-occupied and rental housing.
- H-4.h** Manage development of land within and adjacent to existing neighborhoods to avoid potentially adverse impacts on the living environment.
- H-4.i** Encourage proper maintenance of essential public services and facilities in residential developments.
- H-4.j** Encourage available public and private housing rehabilitation assistance programs where such action is needed to insure preservation of the living environment.
- H-4.k** Facilitate maximum utilization of federal and state programs which can assist lower-income homeowners to properly maintain their dwelling units.
- H-5.a** Encourage enforcement of fair housing laws throughout the city.
- H-5.b** Support programs that increase employment and economic opportunities.
- H-5.c** Encourage development of a range of housing for all income levels in proximity to existing and planned employment centers.
- H-5.d** Encourage full utilization of federal and state housing assistance programs which can enable those persons with unmet housing needs to obtain decent housing at prices they can afford.
- H-5.e** Support development of housing plans and programs, including new government subsidized housing,



that maximizes housing choice for minorities and lower-income households commensurate with need.
<b>H-5.f</b> Wherever possible, implement adopted land development and resource management policies without imposing regulations that have the effect of excluding housing for lower-income groups.
<b>H-6.a</b> Advocate and support proposed federal and state actions to promote energy conservation.
<b>H-6.b</b> Promote public awareness of the need for energy conservation.
<b>H-6.c</b> Promote development of public policies and regulations that achieve a high level of energy conservation in all new and rehabilitated housing units.
<b>H-6.d</b> Encourage maximum utilization of federal and state programs that assist homeowners in providing energy conservation measures.

### **Noise**

**Vision:** *A community that takes pride in its quiet rural setting and promotes urban design principles that reduce noise levels within the urban limits of the city while providing areas where necessary noise generation from industrial or other uses can be allowed to provide for necessary economic growth in the city and region.*

### **Goal Area N-1: Noise**

#### **GOALS**

- **A Quiet Environment**
- **Sensitive Land Use Protected From Excessive Noise**

#### **POLICIES**

- N-1.1** Reduce surface vehicle noise.
- N-1.2** Reduce equipment noise levels.
- N-1.3** Reduce noise levels at the receiver where noise reduction at the source is not possible.
- N-1.4** Coordinate planning efforts so that noise-sensitive land uses are not located near major noise sources.
- N-1.5** Mitigate all significant noise impacts as a condition of project approval for sensitive land uses.

### **Safety**

**Vision:** *A community that promotes and provides a safe and healthy environment for its residents and visitors.*

### **Goal Area 1: Disaster Preparedness**

#### **GOALS**

- **General Disaster Preparedness**

#### **POLICIES**

- S-1.1** Develop and maintain emergency preparedness procedures for the city.

### **Goal Area 2: Seismic Safety**

#### **GOALS**

- **Reasonable Safety for city Residents from the Hazards of Earthquake and Other Geologic Activity.**

#### **POLICIES**

- S-2.1** Reduce the potential danger from earthquake and seismic-related activity to existing buildings where necessary.
- S-2.2** Encourage the improvement of all public facilities and infrastructure such as natural gas, fuel, sewer, water, and electrical lines and equipment with up-to-date seismic safety features.
- S-2.3** Restrict urban development in all areas with potential ground failure characteristics.

***Goal Area 3: Flooding***

**GOALS**

- A city Free From Other Than Street Flooding

**POLICIES**

- S-3.1** Endeavor to maintain the existing city and the Urban Growth Area out of the 100-year floodplain.  
**S-3.2** Maintain essential city services in the event of flooding or dam failure.

***Goal Area 4: Fire Protection***

**GOALS**

- Fire and Hazardous Material Safety for the Residents of the city and For Those Working in Fire Suppression.

**POLICIES**

- S-4.1** In cooperation with the Consolidated Fire Protection District, promote the concept of fire protection master planning with fire safety goals, missions, and supporting objectives for the community.  
**S-4.2** Work with the Consolidated Fire Protection District to maintain a reasonable level of accessibility and infrastructure support for fire suppression, disaster, and other emergency services.

***Goal Area 5: Crime***

**GOALS**

- Reduced Criminal Activity and An Increased Feeling of Safety and Security in the Community.

**POLICIES**

- S-5.1** Provide superior community-based police services.  
**S-5.2** Provide services and personnel necessary to maintain community order and public safety.

***2.4 Statement of Project Intent***

In broad terms, the ***Waterford General Plan*** is a strategy for accommodating population growth in a manner that minimizes adverse “physical” impacts of growth and development. “Physical” adverse impacts are within the purview of CEQA. Social and economic impacts are typically beyond the scope of CEQA and this Program EIR unless they will result in a “physical” impact (CEQA Guidelines Section 15131).

***2.5 Assumptions & Considerations***

The Waterford Vision 2025 General Plan Update and Program EIR analysis rely on several assumptions regarding existing and future conditions in the city of Waterford and the city’s growth area. Specifically, these assumptions are:

- 1) California’s population will continue to grow into the middle of the current century and beyond due to its strategic location on the Pacific Coast and access to growing Asian economies.
- 2) The central San Joaquin Valley will attract growth because of its proximity to the strong economic growth that will occur in the San Francisco Bay Area and relatively low cost land and housing opportunities compared to the Bay Area.
- 3) These long-term trends are reflected in the State Department of Finance’s population forecasts showing Stanislaus County, with a 2005 population estimated to be at approximately 522,300 people and growing to nearly one-million people by the year 2040.
- 4) Conservatively, future population growth in Waterford will approach 14,500 by the year 2025 and 18,600 by the year 2040.

- 5) High growth estimates for the city indicate potential population growth for Waterford approaching 19,000 by 2025 and 28,200 by 2040.
- 6) In order to accommodate efficient levels of service delivery, regional urban development (residential, commercial and industrial) will be focused within the city's growth area and not in the unincorporated areas surrounding the city.
- 7) The average household size in the city will remain at approximately 3.5 people per dwelling unit.
- 8) Agriculture and recreation will remain the primary economic focus driving the local economy through the year 2040.

If some of these events do not occur within the next 20 years, the general plan goals and policies will need to be reevaluated in light of changing conditions.

At present, there are "trends" that could have a dramatic impact on the growth and development forecasts for Waterford, the region, and the State of California; even the nation as whole can be significantly impacted by these "trends". Shifts in energy supplies and the need to develop new energy sources and technologies could result in major modifications in travel patterns, commutes and even the dominant mode of transportation.

Global warming trends forecasted by scientists could significantly modify local weather patterns, agricultural cropping patterns and the water resources available in the region for both agriculture and non-agricultural uses. The city's plan attempts to anticipate the implications of these long term "trends" and provide policies that will result in flexibility for future generations. The policies and programs promoted by the city, that establish New Urbanist approaches to growth and development, minimize our future reliance on non-renewable energy and water resources.

For purposes of assuring that adequate infrastructure is in place to serve the future growth needs of the city, a hypothetical population of 30,000 people has been used as the future service population of the city. This population "benchmark" applies to the development of infrastructure master plans and specifications for future expansion of sewer, water, storm water and street systems to serve the city and accommodate the "high growth" population scenario for the city in 2040.

It should be noted that there are several events that could occur and result in these assumptions being invalidated. In order to make the plan's vision of the future as reasonably accurate as possible, some policies and analysis contemplate these "special events" occurring. Unless otherwise stated, however, the above assumptions are the primary basis of analysis.

## ***2.6 Project Characteristics***

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As a general plan under California law, the "project" is a policy document used by the city to guide future growth and development. state law requires that the city's development regulations be "consistent" with the general plan. Additionally, zoning and subdivision proposals are required to be consistent with the general plan.

General plan goals and policies tend to be broad and far-reaching. As a result, environmental analysis is conducted in a "broad" manner that reflects the nature of the general plan. (See CEQA Guidelines Section 15146 for a more detailed discussion of this topic.)

**2.6.1 Goals, Policies and Actions** Each Chapter of the Waterford Vision 2025 General Plan Update contains goals, policies and a list of potential implementing actions. A goal is the broad vision of what the community wants to achieve or provide to residents, landowners, business-owners, and visitors. It is a statement of a desired condition. The goal is general in nature and usually timeless.

Policies and actions are short to intermediate range. Policies state the city's clear commitment on how goals will be achieved. Actions are specific and describe the means by which the city may carry out a policy.

**2.6.2 Land Use Diagram** The city's land use diagram for the general plan is shown in Figure 2.1. It presents the general distribution of the uses of land within the city of Waterford and its proposed growth boundary.

The Land Use Diagram combined with general plan policy text set forth the number of people and dwelling units per net acre of land for each property planned for residences and the building intensity for all other proposed development. This building intensity is expressed in terms of a floor area ratio, which is the gross floor area permitted on a site divided by the total net land area of the lot. Other pertinent features of the Land Use Diagram include the locations of existing and proposed parks, public schools, and other public facilities such as fire stations.

General plans also must contain a circulation element. This element shows the location and extent of existing and proposed thoroughfares, transportation routes, terminals, and other local public utilities and facilities, and correlates them with the land use element. Maps are needed to show location. Waterford's circulation plan shows current and proposed arterials, collector streets, and local streets as well as bikeways and rail lines (on separate maps). This roadway system has been tested against the planned level of development proposed in this plan and has been found to be adequate.

Together, the land use diagram and circulation plan graphically show the managed growth of the city for the next 20 years. The general plan also contains other maps and diagrams that show various features of Waterford and help illustrate various goals and policies of the general plan.

## ***2.7 Intended Uses of the EIR***

The City of Waterford, as the Lead Agency for this project, will use this PEIR in consideration of the Waterford Vision 2025 General Plan Update. This document provides necessary and required project related environmental information for several other agencies affected by the project, and/or agencies that are likely to have an interest in the project. Various state and federal agencies exercise control over certain aspects of the project area. Table 2.1 contains a list of the various public agencies expected to have a particular interest in the proposed project and their potential use of the document in their CEQA compliance efforts.

**Table 2.1  
Public Agencies & Their  
Expected Use of This Program EIR**

<b>Agency:</b>	<b>Potential Project or Action</b>	<b>Remarks:</b>
<b><i>Local Agencies:</i></b>		
The City of Waterford:		
<i>Planning Dept.</i>	All city development permits, including subdivision maps, zoning permits, rezonings, general plan amendments, etc.	The city has “Lead Agency” responsibilities over its development review processes requiring CEQA compliance.
<i>Public Works Dept.</i>	Capital facility improvement projects and public works projects including street improvements, drainage, lighting, sewer, water and similar construction/maintenance projects.	The city has “Lead Agency” responsibilities for all capital facility and public works projects undertaken by, or on behalf of, the City of Waterford that are subject to CEQA review.
<i>Recreation.</i>	Parks and open space acquisition, development and maintenance projects.	The city has “Lead Agency” responsibilities for all parks and open space projects undertaken by, or on behalf of, the City of Waterford that require CEQA review.
City of Modesto	Undertake water system improvements and maintenance.	Within the Del Este Water System service area, the City of Modesto provides water service to city residents. The City of Modesto has “Lead Agency” responsibilities for water projects undertaken by, or on behalf of, the City of Modesto that require CEQA review.
Modesto Irrigation District (MID)	Undertake water system improvements.	Within the City and surrounding area, MID provides irrigation water and bulk potable water to farmers and water service providers in the region. The MID has “Lead Agency” responsibilities for water projects undertaken by, or on behalf of, the MID that require CEQA review.

**Table 2.1 Continued**

<b>Agency:</b>	<b>Potential Project or Action</b>	<b>Remarks:</b>
Stanislaus County	Review of discretionary permits within the vicinity of the city of Waterford.	The city's Sphere of Influence (SOI) and future Urban Growth Area define the areas surrounding the city of Waterford that the county would use to determine "Plan Consistency" for development proposals under county review outside the "corporate" limits of the city. The county of Stanislaus is the "Lead Agency" for decisions regarding its general plan in addition to the review/approval of all discretionary permits under its jurisdiction.
Stanislaus County LAFCo.	Amended city Sphere of Influence; city annexations/detachments, special district organizations and reorganizations within the city and surrounding area.	LAFCo has "Lead Agency" responsibilities for SOI actions, and Responsible Agency responsibilities for annexation and detachment proceedings. (Under certain circumstances, LAFCo may act as the Lead Agency in these proceedings.)
Waterford Unified School District.	Land acquisition, construction and maintenance of the District's facilities located within the city's URBAN GROWTH AREA.	The Waterford Unified School District has "Lead Agency" responsibilities for projects undertaken by, or on behalf of, the District that are subject to CEQA review.
Stanislaus County Consolidated Fire Protection District.	Land acquisition, construction and maintenance of the District's facilities located within the city's URBAN GROWTH AREA.	The District has "Lead Agency" responsibilities for projects undertaken by, or on behalf of, the District that are subject to CEQA review.
Stanislaus County Association of Governments (StanCog).	StanCog provides several planning and support services to the county of Stanislaus and its cities. Among these is the COG's responsibilities as the Transportation Planning Agency for Stanislaus County. Some planning activities are considered "projects" and where StanCog has final "approval" authority, may be considered a lead agency.	StanCog may have "Lead Agency" responsibilities for planning "projects" undertaken by, or on behalf of, the Transportation Planning Agency of Stanislaus County that are subject to CEQA review. StanCog also has an interest and a potential advisory status with respect to this document and subsequent CEQA actions taken under the auspices of this document.

**Table 2.1 Continued**

<b>Agency:</b>	<b>Potential Project or Action</b>	<b>Remarks:</b>
<b><i>Regional Agencies:</i></b>		
San Joaquin Valley Unified Air Pollution Control District.	Air quality permits; review of discretionary project permits issued by the city that may result in significant emissions and/or require subsequent APCD permits.	The San Joaquin Unified APCD may act as a Lead Agency or Responsible Agency for permits issued under its jurisdiction, depending on the nature of the circumstances of the permit.
Central Valley Water Quality Control Board.	Waste Discharge Permits; review of discretionary project permits issued by the city that may result in significant emissions and/or require subsequent RWQCB permits.	The Regional Water Quality Control Board may act as a Lead Agency or Responsible Agency for permits issued under its jurisdiction, depending on the nature of the circumstances of the permit.
<b><i>State Agencies:</i></b>		
California Department of Fish & Game.	Review of Stream Bed Alteration Permits & development projects within the Project Area's riparian, wetland and sensitive habitat areas.	DFG is a Trustee Agency and has review authority over environmental documents prepared for locally approved projects within the city's Urban Growth Area.
State Office of Historic Preservation.	Review of development project proposals for compliance with State regulations regarding archaeological and historic sites and resources.	The SOHP does not have direct permit authority for projects which may be proposed in the area. It therefore is considered an interested agency and should be consulted regarding potential development impacts on important cultural resources in the city's Urban Growth Area.
California Department of Health Services.	Administration of State Health Code regulations; may have permit jurisdiction on some aspects of development approval.	DHS may be a "Responsible Agency" for some State Health permits (i.e. water system inspection & permitting.) issued within the city's Urban Growth Area.
California Department of Parks & Recreation.	The State Parks Department has no direct permit jurisdiction. It may, from time to time, offer grant or technical assistance to the city.	The city would act as "Lead Agency" for "Projects" undertaken by the city, utilizing resources provided by the State Dept. of Parks and Recreation. The Dept. is considered an interested agency and should be consulted regarding potential development impacts on important recreation resources in the Urban Growth Area.

**Table 2.1 Continued**

<b>Agency:</b>	<b>Potential Project or Action</b>	<b>Remarks:</b>
California Department of Transportation (CALTRANS).	CALTRANS has encroachment permit authority on State Highways (Hwys. 132). The Agency also provides supplemental transportation funding to cities and counties. Activities undertaken with these funds may be defined as “projects” under CEQA.	CALTRANS is a “Responsible Agency” for development projects which have a direct access to the State Highway system. They also must be informed on traffic and circulation issues resulting from development occurring within the city’s Urban Growth Area and impacting the State Highway system.
California Housing and Community Development Department.	State HCD has review authority of the city’s General Plan Housing Element. The Agency also provides various kinds of financial and technical assistance to local governments.	While HCD has no direct permit authority over development within the city’s Urban Growth Area P, it has an interest in housing and economic matters relating to its jurisdiction. State HCD is considered an interested jurisdiction with respect to some types of development proposals processed by the city.
California Department of Food and Agriculture.	The Dept. of Agriculture has no direct permit jurisdiction. It does, however, monitor development impacts on agriculture.	The Dept. of Agriculture is an Interested Agency regarding Waterford Urban Growth Area P development.
California State Office Of Education.	The Dept. of Education has no direct permit jurisdiction. It does, however, monitor development impacts on the local school system.	The Dept. of Education is an Interested Agency regarding Waterford Urban Growth Area development.
California Waste Management Board.	The Board has no direct permit jurisdiction. It does, however, monitor development impacts on the county’s landfill site.	The Board is an Interested Agency regarding Waterford Urban Growth Area development.
Energy Commission.	The Commission has no direct permit jurisdiction. It does, however, monitor development impacts on energy use in the Urban Growth Area.	The Commission is an Interested Agency regarding Waterford Urban Growth Area development.
Native American Heritage Commission.	The Commission has no direct permit jurisdiction. It does, however, monitor development impacts on Native American cultural resources.	The Commission is an Interested Agency regarding Waterford Urban Growth Area development.
The State Lands Commission.	The State Lands Commission has jurisdiction over State land located within the Urban Growth Area.	The Commission is a “Trustee Agency” for projects proposed within the city’s Urban Growth Area which may impact State lands.



**Lead Agency:** A public agency that has the principal responsibility for carrying out or approving a project. (CEQA Guidelines Section 15367)

**Responsible Agency:** Typically has some sort of permitting authority or approval power over some aspect of the overall project for which a lead agency is conducting CEQA review. (CEQA Guidelines 15096 & 15381) The Responsible Agency relies on the Lead Agency's environmental document in acting on whatever aspect of the project requires its approval (CEQA Guidelines 15096).

**Trustee Agency:** A state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California (CEQA Guidelines Section 15386). The CEQA Guidelines recognize the following four "Trustee Agencies":

- The California Department of Fish & Game, which has jurisdiction of fish and wildlife;
- The State Lands Commission, which has jurisdiction over state-owned "sovereign" lands; and
- The State Department of Parks and Recreation, which administers units of the State Park System.

**2.7.1 Program Environmental Impact Report** The Waterford General Plan Update environmental document has been prepared as a "Program" EIR under the authority of Section 15168 of the CEQA Guidelines.

As a Program EIR, subsequent development projects proposed within the city can be reviewed in the context of this document. If a subsequent project is determined to have environmental effect(s) not addressed in this Program EIR, additional environmental review will be required.

There are several overall benefits that can be derived from utilizing the Program EIR approach for this project's environmental analysis. For example, future environmental costs to the city and to the public can be significantly reduced while achieving a high level of environmental protection within the city.

Where no new effects and no new mitigation measures are involved, a subsequent project may be approved without additional environmental documentation however, environmental processes must be followed as defined by CEQA. Should mitigation measures that reduce potentially significant impacts to less than significant levels be necessary, a mitigated negative declaration can be adopted for a specific project. Where an EIR is required for a subsequent project, the EIR should implement the applicable mitigation measures developed in the Program EIR, and focus its analysis on site-specific issues not previously addressed.

**CEQA Guidelines Section 15168-Program EIR**

(c) ***Use with Later Activities.*** Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.

1. If a later activity would have effects that were not examined in the program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration.
2. If the agency finds that pursuant to Section 15162, no new effects would occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.
3. An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.
4. Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.
5. A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

(d) ***Use with Subsequent EIRs & Negative Declarations.*** A program EIR can be used to simplify the task of preparing environmental documents on later parts of the program. The program EIR can:

1. Provide the basis in an Initial Study for determining whether the later activity may have any significant effects.
2. Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.
3. Focus an EIR on a subsequent project to permit discussion solely on new effects which had not been considered before.

## *Chapter 3*

# *Environmental Impact Analysis*

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### ***3.1 Introduction & Overview***

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A draft EIR must identify and focus on the possible significant environmental impacts of a proposed project [CEQA Guidelines, Section 15126 (a) and Public Resources Code Section 21000 (a)]. The emphasis of the EIR should be placed on the potential impacts that are most significant and most likely to occur.

Impact analysis must focus on the “physical” adverse effects of a proposed project. Potential impacts are expected to be evaluated from the standpoint of short-term and long-term effects as well as direct and indirect effects. Cumulative impacts must also be evaluated.

#### ***3.1.1 Potential Environmental Impact Analysis Assumptions***

This environmental analysis has been conducted in accordance with the following assumptions:

##### *Short-Term/Long-Term Effects:*

As a project, a general plan has a unique status relative to the CEQA process. By its nature, the plan’s impacts are long-term and lasting. The plan guides future growth and development which results in long-term (and mostly) irreversible changes in the physical environment. There are typically no short-term effects or temporary effects of general plan adoption and implementation.

##### *Direct/Indirect Effects:*

As with short-term/long-term effects, adoption and implementation of a general plan typically does not have any direct physical impacts on the environment. Impacts occur indirectly as a result of actions taken in accordance with the plan’s policies.

##### *Significant Physical Effects:*

Section 15360 of the CEQA Guidelines define “Environment” as the physical conditions that exist within the area that will be affected by a proposed project including, but not limited to, land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The section further defines the area involved as the area in which significant effects would occur either directly or indirectly as a result of the project. The “environment” includes both natural and man-made conditions.

Section 15382 defines “significant effect on the environment” as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. An economic or social change by itself shall not be considered a significant effect on the environment. Economic or social change, however, may be considered in determining whether the physical change is significant.

The operative terms of the law are “significant” “adverse” and “physical” changes resulting from the project. These terms shape the manner that environmental issues are evaluated in this Program EIR.

Environmental impacts are identified as follows:

- **Significant Impact:** Impacts that exceed the defined standards of significance.
- **Significant and Unavoidable Impact:** Impacts that, after implementation of all feasible mitigation measures, continue to exceed the defined standards of significance.
- **Less-Than-Significant Impact:** Impacts that are adverse but that do not exceed the defined standards of significance.

### ***3.1.2 Thresholds of Environmental Significance***

#### **A. The Principal of a Threshold Standard**

Thresholds of significance are principally used to determine whether a project may have a significant environmental effect. Thresholds are an analytical tool for judging significance.

The "threshold of significance" for a given environmental effect is simply that level at which the Lead Agency finds the effects of the project to be significant. "Threshold of significance" can be defined as:

“A quantitative or qualitative standard, or set of criteria, pursuant to which the significance of a given environmental effect may be determined.”

Ideally, a threshold of significance provides a clear differentiation of whether or not the project may result in a significant environmental effect.

According to CEQA, a threshold may be based on standards such as the following:

- A health-based standard such as air pollutant emission standards, water pollutant discharge standards, or noise levels.
- Service capacity standards such as traffic level of service, water supply capacity, or waste treatment plant capacity.
- Ecological tolerance standards such as physical carrying capacity, impacts on declared threatened or endangered species, loss of prime farmland, or wetland encroachment.
- Cultural resource standards such as impacts on historic structures or archaeological resources.
- Other standards relating to environmental quality issues, such as those listed in the *Guidelines'* Initial Study Checklist or Appendix G of the *Guidelines*.

#### **B. Standard**

In accordance with Section 15064 (h) (3) of the CEQA Guidelines, a "standard" means a standard of general application that is all of the following:

- a quantitative, qualitative or performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application;

- adopted for the purpose of environmental protection;
- adopted by a public agency through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency;
- one that governs the same environmental effect which the change in the environment is impacting; and,
- one that governs within the jurisdiction where the project is located.

Section 15064 establishes procedures for determining the application of various “standards” for determining “significance” within the meaning of CEQA. Section 15064.7 promotes the use of standards and thresholds that have been adopted to protect the environment as the means for determining the significance of project impacts. Where an applicable standard or threshold exists, an environmental change which complies with that standard or threshold would not be considered significant.

"Standard" has been carefully defined to ensure that any such benchmark for determining significance has been adopted for the purpose of environmental protection, governs the same environmental effect that the project is causing, and governs within the area of the project. Further, only those standards which have been adopted by a public agency after a public review process are applicable.

The following sections establish thresholds of significance that are used for evaluating the potential environmental impacts of this project. Where applicable, various standards have been established, based on existing law or regulation or as determined by the Lead Agency as applicable for the purposes of evaluating the impacts of this project.

### ***3.1.3 Effects Determined Not To Be Significant***

Section 15128 of the CEQA Guidelines requires that an EIR contain “a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore not discussed in detail in the EIR.” As a general plan environmental impact report, all areas of potential environmental concern, as identified in Appendix “G” of the CEQA Guidelines, have been discussed in this Environmental Impact Report.

### ***3.1.4 Potential Environmental Impacts***

Each section of this chapter is organized around the analysis of a specific area of environmental concern. An explanation of each impact and an analysis of its significance follows each impact statement.

***Aesthetics:*** This environmental issue focuses on the impacts of a project on scenic vistas and the overall appearance of the project in the community context. Issues of light and glare, community view-sheds, architectural compatibility with existing development or a specific site or setting are all part of the issue of “Aesthetics” as addressed within the framework of CEQA.

Scenic vistas or view-sheds that could potentially be affected by new development or intensification of uses associated with implementation of the general plan exist in the planning area. Additionally, new construction or development could detract from the community character of the city, particularly with respect to the older or historic portion of the town.

**Agriculture:** This environmental issue focuses on the impacts of a project on farmland and agricultural productivity. Environmental concerns focus on the loss of agricultural cropland as inventoried by the Farmland Mapping and Monitoring Program of the California Resources Agency as well as agricultural zoning and Williamson Act Contract lands. An additional area of concern is the potential change resulting from a project that could lead to future conversion of agricultural lands to non-agricultural uses.

The expanded city sphere of influence and urban planning area as contemplated by the general plan's Land Use Element have the potential to impact important farmland as identified by the state Farmland Mapping and Monitoring Program.

**Air Quality:** This environmental issue focuses on the impacts of a project on air quality. Issues of concern relate to project consistency with applicable air quality plans, policies and regulations, increases of any pollutant for which the area has been designated as a "non-attainment" area. Additional concerns are over the exposure of sensitive receptors, such as people, to high levels of air pollution or odors.

The Waterford Vision 2025 General Plan Update is not expected to conflict with the implementation strategy of the San Joaquin Valley Regional Air Quality Management Plan. However, as the community grows and the general plan is implemented, commuter traffic from the community to the job centers in the central Valley will remain a potential concern with respect to cumulative impacts on the Valley's air quality.

**Biological Resources:** This environmental issue focuses on the impacts of a project with respect to biological resources such as sensitive plant or animal species or their habitat, or riparian habitat, or its potential interference with the normal movements of wildlife species in the vicinity of a project. Additional concerns focus on consistency of a project with adopted plans, policies and regulations regarding wildlife, habitat conservation planning, local wildlife preservation plans and policies or wetlands.

The expansion of the city's sphere of influence and urban planning area has the potential to impact the habitat of sensitive species. city expansion will occur on land that is currently vacant and/or open space, or in agricultural production. A biological resources survey of existing studies was conducted as part of the environmental review of the general plan and will be included in the Program EIR. This survey provides "focus" for future project specific biological field studies that are typically conducted as part of the project level review process.

**Cultural Resources:** This environmental issue focuses on the impacts of a project on cultural resources including, but not limited to, the adverse change to a significant historical or archaeological resource. Other areas of concern include the potential for a project to adversely impact a unique paleontological resource or geologic feature or disturb any human remains.

The expansion of the city's sphere of influence and urban planning area has the potential to impact cultural resources that may be located in these areas. city expansion will occur on land that is currently vacant and/or open space, or in agricultural production. A cultural resources survey of literature was conducted as part of the environmental review of the general plan and will be included in the Program EIR. This survey provides "focus" for future project specific

cultural resource field studies that are typically conducted as part of the project level review process.

***Geology & Soils:*** This environmental issue focuses on the impacts of natural geologic or soil conditions on a project. Specific concerns include earthquakes and seismic related hazards, or unstable soils.

The project area is not located within an area depicted on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist. Development occurring in the city as a result of implementation of the general plan will be required to adhere to all regulations relating to grading and soil erosion.

***Hazards & Hazardous Materials:*** This environmental issue focuses on the impacts of a project with respect to hazards. The creation of new hazardous conditions or activities that will result in people or property being exposed to existing hazards is the primary area of focus under this environmental issue. Hazards include, but are not limited to, hazardous materials, hazards associated with aircraft and airports or wild-land fires. An additional concern is the consistency of a project with emergency response plans or emergency evacuation plans.

The project area is unlikely to contain listed “Hazardous Sites” and the storage and handling of materials that might be considered “hazardous” is limited to those materials that are common in households, businesses and industries in the region, which are strictly regulated in accordance with state and federal regulations.

***Hydrology & Water Quality:*** This environmental issue focuses on the impacts of a project on surface and groundwater, including compliance with water quality standards and regulation, depletion of groundwater supplies, pollution or degradation of water quality. Additional concerns include water related hazards such as flooding, mudflows and similar hazards. This area of environmental concern also addresses potential project impacts on area drainage, including storm water runoff.

Growth and development associated with the implementation of the Waterford Vision 2025 General Plan Update will utilize water from the city’s system which is owned and operated by the City of Modesto. The system will need to supply water not only for domestic consumption and landscaping, but also for fire protection. In order to meet water consumption demand at build-out of current land use zones during peak hours the water system will need to incorporate new groundwater wells or introduce treated surface water supply into the system. The city may need an expanded water system to support the growth envisioned by the general plan. An assessment of infrastructure needs as a result of the implementation of the general plan has been prepared and is part of the environmental review of the general plan and is included in the Program EIR.

***Land Use & Planning:*** This environmental issue focuses on the impacts of a project on adopted land use, habitat conservation or natural community conservation plans. The specific focus of this area of environmental concern is potential project conflicts with established plans and policies or the potential for the project to physically divide a community area.

The Waterford Vision 2025 General Plan Update contemplates an expansion of the city's sphere of influence and urban planning area. The expanded city urban planning area is generally bounded by Dry Creek to the north, the Tuolumne River to the south, Eucalyptus Road to the west and the Modesto Reservoir recreation area to the east. The Land Use Chapter of the general plan establishes land use goals and policies, supported by implementation actions, for the manner in which new development will occur and existing uses and resources will be preserved in the city. The future land use configuration of the city will be shaped through the implementation of this chapter. Since it regulates how land is to be utilized, most of the issues and policies contained in all other plan chapters are integrated and synthesized by this chapter.

***Mineral Resources:*** This environmental issue focuses on the impacts of a project on known mineral resources of commercial or otherwise documented economic value.

The project site is not located on a Mineral Resource Zone identified by the California Department of Conservation-Division of Mines and Geology Mineral Land Classification Surveys. The area encompassed and governed by the general plan is unlikely to contain any sand and gravel resource site of local importance.

***Noise:*** This environmental issue focuses on the impacts of a project with respect to noise or ground-borne vibration. The creation of new noise or ground-borne vibration conditions or activities that will result in people or property being exposed to existing noise or vibrations is the primary area of focus under this environmental issue.

Noise will be generated as a result of implementation of the general plan. Construction of residential, commercial and industrial uses, as well as associated supporting infrastructure, will result in a temporary increase in noise levels in the city. There will also be a long-term increase in noise as the city grows to implement the general plan. Noise increases will occur as a result of residential, commercial and industrial uses and new traffic in the area encompassed by the general plan. A noise model was developed to identify projected future noise levels along planning area roadways. Future development project will typically be required to supplement this noise model with project specific noise data and develop design solutions for forecasted noise problem areas.

***Population & Housing:*** This environmental issue focuses on the impacts of a project on population and housing, including population growth or displacement of human population and housing.

The city's current population is approximately 8,000. The proposed general plan is a long-range plan intended to guide growth and development of the city through the year 2025. The city has set a threshold population level of 30,000 for the year 2025 and beyond to provide a benchmark for planners and engineers to design major infrastructure elements for the city (sewer, water, storm drain and street and highway system). The city's increased population will impact the provision of utilities and public services and these impacts will be addressed in the applicable sections of the PEIR.

***Public Services & Facilities:*** This environmental issue focuses on the impacts of a project on public service facility (and infrastructure/utility) needs and the potential environmental impacts



of developing and/or expanding these facilities. Facility needs can be defined by the need to maintain acceptable levels of service such as response times, or other such community service standards as may apply.

As the Waterford Vision 2025 General Plan Update is implemented and projected growth and development occurs, there will be a need to provide additional public services, particularly schools, parks and recreation facilities, and police and fire protection services.

***Recreation:*** This environmental issue focuses on the impacts of a project on public recreation service and facility needs and the potential environmental impacts of developing and/or expanding recreation facilities. Facility needs can be defined by the need to maintain acceptable levels of community recreation service in the area and region.

Modifications to the existing recreation resources of the city and surrounding area will be reviewed as part of the general plan update and the Program EIR.

***Transportation/Circulation:*** This environmental issue focuses on the impacts of a project on transportation systems including roads and highways, public transportation systems, pedestrian circulation and access, parking, and emergency access. Impacts can be in the form of new hazardous circulation or traffic conditions, conflict with existing plans or policies or the creation of an unacceptable traffic level on a transportation system or facility.

The changes proposed in the general plan will need to be reviewed to determine the potential impacts to existing transportation and circulation systems. Changes might be examined with respect to the planned distribution of land uses as contemplated in the land use chapter of the general plan. These changes will need to be evaluated in the Program EIR. The impact of the city's expansion on regional transportation systems and roadways will also need to be examined. A traffic study will be prepared as part of the environmental review of the city's general plan and will be included in the Program EIR.

***Utilities & Service Systems:*** This environmental issue focuses on the impacts of a project on public utility systems or facilities such as water, wastewater, storm water drainage or other utility or service systems.

## ***Section 3.2***

### ***Aesthetics***

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#### ***3.2.1 Background***

This environmental issue focuses on the impacts of a project on scenic vistas and the overall appearance of the project in the community context. Issues of light and glare, community view-sheds, architectural compatibility with existing development or a specific site or setting are all part of the issue of “Aesthetics” as addressed within the framework of CEQA.

Scenic vistas or view-sheds exist in the planning area that could potentially be affected by new development or intensification of uses associated with implementation of the general plan. Additionally, new construction or development could detract from the community character of the city, particularly with respect to the older or historic portion of the town.

#### ***3.2.2 Environmental Setting***

The city of Waterford is located on gently sloping terrain with little topographic relief. Within the city, most views are of the surrounding urban development. Along the city’s edge, north and western views are dominated by typical agricultural views of the San Joaquin Valley. Surrounding views typically include agricultural and grazing lands interrupted by agricultural buildings and trees. The Tuolumne River runs through the southern side of the city. The view to the east is dominated by the low foothills of the Sierra Nevada Mountains.

Waterways dominate the urban setting of Waterford. The Tuolumne River crossing provides a scenic entrance to the city from the south and the Tuolumne River and Dry Creek defines the southern and northern boundaries of the planned future urban area. Within the existing, and future, urban area the Modesto Irrigation District canal system creates the urban pattern of the city and provides an important scenic resource during all but the winter months of the year. During the winter the canal system is dry exposing debris that has collected in the channels.

*Scenic Highways:* There are no streets or highways in the planning area that meet the criteria for Scenic Highway designation. State Highway 132 (Yosemite Boulevard), is the city’s major arterial, connecting Waterford to Modesto on the west and the Sierra Nevada mountains to the east. The downtown area is adjacent to the highway, all other commercial uses are located along this route. It is along this transportation corridor where many people develop their first impressions of the city. Unfortunately, the corridor offers few visual cues or points of interest. Most of the corridor is composed of random residential and commercial uses. Hickman Road Bridge over the Tuolumne River serves as an otherwise nondescript gateway to the city from the neighboring community of Hickman to the south.

From the bridge, views to the north are characterized by the river corridor and bluff line, a large vacant lot, and industrial uses, including an auto wrecking yard. Views to the south are of river corridor and bluff line, scattered buildings, a commercial nursery, native vegetation and the percolation ponds of the city’s wastewater treatment facility. The entrance to the city from the north along the Waterford/Oakdale Highway (J19) also tends to be nondescript. Most of the

corridor is composed of a mixture of single-family and multi-family uses along with scattered vacant lots.

*Visual Character:* With the exception of views to the south of the Tuolumne River corridor, the Waterford area has been largely defined by its immediate agricultural surroundings. Within the city, are typical residential neighborhoods and the downtown area, which contains some older commercial and residential buildings. The visual character of the city has not changed much through the decades. The downtown area tends to be visually unattractive due to its lack of any unifying architectural design elements and a mixture of housing and commercial buildings that lack any central or “focus” features.

The area encompassed by the updated general plan is generally flat to rolling along its eastern and northeastern edge. Implementation of the general plan would result in increased urban growth, which could alter the visual setting or character of the planning area.

*Scenic Areas and View Corridors:*

The Tuolumne River is the potentially dominant feature within the city. The river is situated along the southern boundary of the city. The overall visual and physical attributes of the river can be characterized as a riparian river corridor, native grasslands and woodlands; including oaks, cottonwoods and willows. The city is currently pursuing a land easement and the acquisition of parklands along the river to preserve and protect these scenic assets.

*View-Scape Corridors:*

- Hickman Road Bridge: east and west across the Tuolumne River.
- South Reinway Avenue: south, east and west along the Tuolumne River.
- Riverside Road: south along the Tuolumne River.
- Skyline Boulevard: facing south towards the Tuolumne River.
- Tim Bell Road along Dry Creek.

*View Opportunities:* View opportunities are those views of scenic vistas available from within the city. The Sierra Nevada Mountains may be visible from some parts of the built-up community. Views of expansive agricultural fields are visible from the urban fringes of the city and from the bluff areas along Skyline Boulevard. During the development of the project planning area, each new project would typically require at least a preliminary environmental document evaluating the visual resources and architectural and design standards proposed to complement the natural setting.

*Light and Glare:* As an urbanized area, the city of Waterford is the major source of night time light in the area. Street lights, and commercial and industrial lighting are the major sources of light in the city. The lights of the cities on the valley floor, particularly those along the Highway 99 corridor such as Turlock and Modesto, influence the nighttime view to the west.

### ***3.2.3 Environmental Impacts***

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As the city grows, it is inevitable that grazing and other agricultural land will be converted to an urban use within the city's Sphere of Influence (SOI). The city is surrounded by land that is used

for a variety of agricultural purposes from livestock grazing to orchards. Agricultural land inevitably will be converted to urban use within the city's urban planning boundary.

Scenic vistas or view-sheds exist in the planning area and they could potentially be affected by new development or intensification of uses associated with implementation of the general plan. Additionally, new construction or development could detract from the community character of the city particularly with respect to its older portions. Anticipated development of new or intensified urban uses in the planning area may introduce and/or increase new sources of light and reflected light and glare in the community.

#### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Aesthetics as follows:

##### ***Would the Project:***

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- Substantially degrade the existing visual character or quality of the site and its surroundings?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

#### **DEFINITION OF ISSUE**

*Aesthetic Resource* An aesthetic resource is any element, or group of elements, that embodies a sense of beauty. A city's aesthetic resources include its natural setting, the architectural quality of its buildings, the vitality of its landscaping, the spatial relationships they create, and the views afforded by each. The degree to which these resources are present in a community is clearly subject to personal and cultural interpretation. However, it is possible to qualify certain resources as having aesthetic characteristics, and establish general guidelines for assessing the aesthetic impacts of new development.

#### **DEFINITION OF AESTHETIC TERMS**

*Scenic Vista* A scenic vista is the view of an area that is visually or aesthetically pleasing. One example is the area encompassing a lake or a park-land water amenity and the view-shed extending from the lake to the highest visible point surrounding the lake. Aesthetic components of a scenic vista include; 1) scenic quality, 2) sensitivity level, and 3) view access.

*Scenic Resource* An element of a scenic area that contributes to the area's scenic value and includes landform, vegetation, water, adjacent scenery, and may include a cultural modification to the natural environment.

*Visual Character and Quality* The visual aesthetic character or quality of a streetscape, building, group of buildings or other man-made or natural feature that create an overall impression of an area within an urban context. As examples, a scenic vista along the boundary of a community or a pleasing streetscape with trees, well kept residences and yards are scenic resources that create a pleasing impression of an area. In general, concepts of visual character and quality can be

organized around four basic elements; 1) site utilization, 2) buildings and structures, 3) landscaping and, 4) signage.

## ***ASSESSMENT OF SCENIC RESOURCES***

### **DEFINITION OF ISSUE**

A scenic vista is typically a rural area containing natural visual elements that can be seen from a distance. A scenic vista can be impacted in two ways. A development project can have visual impacts by either directly diminishing the scenic quality of the vista or by blocking the view corridors or “Vista” of the scenic resource. Important factors in determining if a proposed project will block views include its height, mass, and location relative to surrounding land uses and travel corridors.

### **DEFINITION OF SCENIC RESOURCE TERMS**

*Scenic Resource Area* An area that, due to land form, rock outcroppings or other natural features, vegetation, presence of water or some other natural element, creates a view that is aesthetically pleasing to the viewer and is normally viewed from a distance of one mile or more.

*Scenic Resource Management Standard* A standard or set of policies that address the physical attributes, visibility and uniqueness of a scenic resource adopted by the city or other appropriate scenic resource management agency for the purpose of regulating physical changes that may be allowed within an area designated as a scenic resource area.

*Visual Access Standard* A standard or set of policies adopted by the city or other appropriate scenic resource management agency for the express purpose of assuring proper access to a scenic resource and preserving a view corridor.

### **THRESHOLD CRITERIA**

When a project:

- A) Results in visual intrusion by means of construction or development within a designated scenic resource area, designated in accordance with applicable federal state or local policies, that violates the locally adopted scenic resource management standards of the designated scenic resource area or,
- B) Results in obstruction of a public view, as established by a public access standard, of a designated scenic resource area in a manner that violates the locally adopted visual access standards for the scenic resource area, the project will have a significant adverse impact on scenic resources.

## ***ASSESSMENT OF VISUAL CHARACTER***

### **DEFINITION OF ISSUE**

In an urbanized area, it is important that buildings and other visual landmarks are properly fitted into the built environment, and designs are mindful of their aesthetic impacts on the natural environment. Factors used in determining the suitability of new structures in a given location include scale (height and mass), pattern (separation from other buildings), and architectural design. The city's desire to reduce disruptive impacts and encourage compatible design is based on the principle that similar elements existing together create an easily recognizable and identifiable place.

#### DEFINITION OF VISUAL RESOURCE TERMS

*Designated Architectural Resource Area* An area that has been determined to contain aesthetic elements such as buildings, streetscapes, trees and other vegetation, water elements, etc., that should be preserved, protected and/or enhanced and therefore is subject to local design review regulations and standards.

*Visual Character or Quality Resource Standard* A standard or set of policies adopted by the city for the purpose of regulating physical changes that may be allowed within an area designated as an architectural resource area.

#### THRESHOLD CRITERIA

When a project constructed or developed within an architectural resource area designated in accordance with applicable local policy, violates the locally adopted visual character or quality resource management standards of the designated architectural resource area, the project will have a significant adverse impact on the visual character or quality of a site and its surroundings.

#### ***ASSESSMENT OF LIGHT AND GLARE***

##### DEFINITION OF ISSUE

Light and glare create environmental problems when it directly illuminates or reflects upon adjacent property or could be directly seen by motorists or persons residing, working or otherwise located within sight of the project. Light sensitive areas, such as view corridors to scenic resource areas or areas containing other important visual qualities, can be adversely impacted by light and glare sources that impair the visual quality of the vista.

##### DEFINITION LIGHT AND GLARE TERMS

*Foot Candle* The primary measure of light intensity. One foot candle equals one lumen per square foot.

*Glare* A continuous or periodic intense light that may cause eye discomfort or be blinding to humans.

*Light Pattern* The area of direct illumination from a light source.

*Light Source* A device that produces illumination, including incandescent bulbs, fluorescent and neon tubes, halogen and other vapor lamps, and reflecting surfaces or refractors incorporated into a lighting fixture. Any translucent enclosure of a light source is considered to be part of the light source.

*Point of Overlap* The highest point vertically from ground level at which adjacent light patterns overlap.

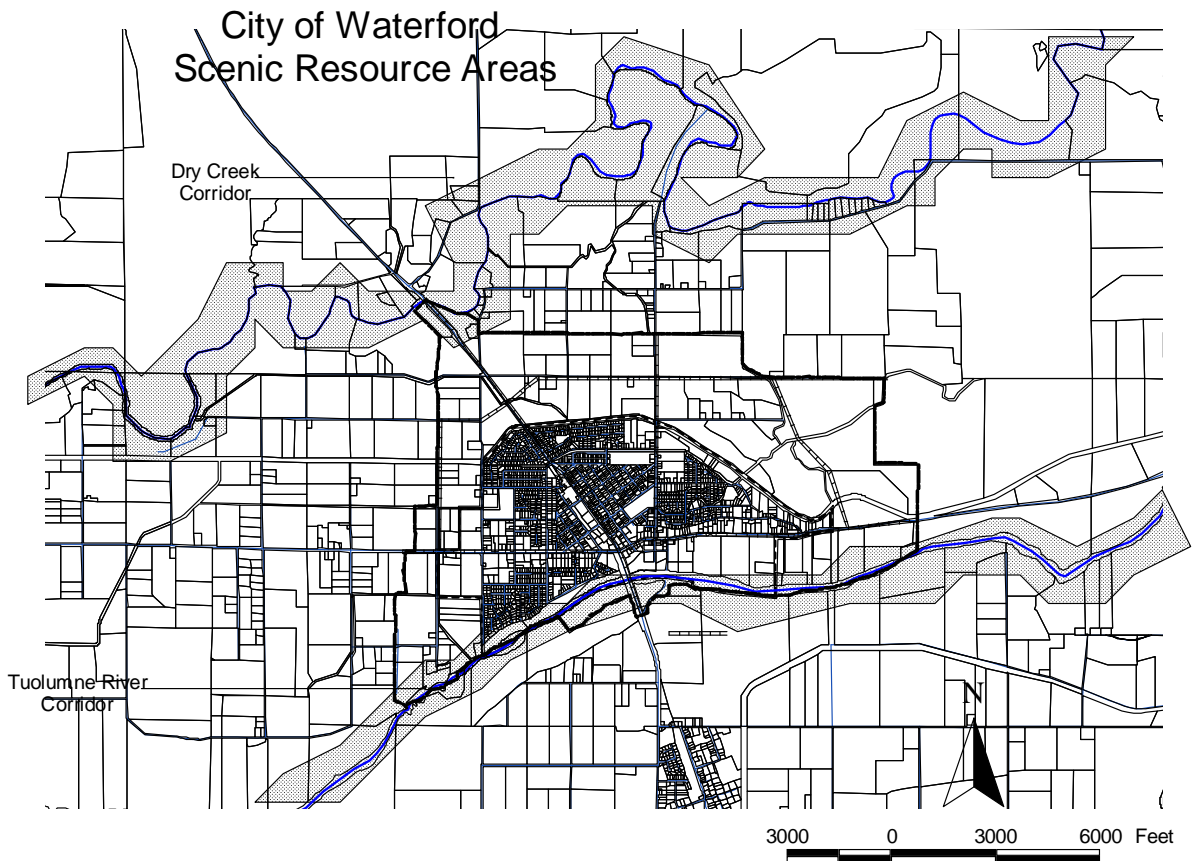
#### THRESHOLD CRITERIA

A significant light and glare impact would result from any project that would result in:

- A) A new light source that would adversely affect day or nighttime views of a designated scenic resource area or,

- B) A new light source that does not conform with the standards for lighting established for a community with respect to signs, parking area or security lighting, or
- C) Utilization of reflective exterior building materials where, due to the relation to the position of the sun, create glare on surrounding properties so as to create a nuisance, adversely effect view-sheds of, or the visual resources within, a designated scenic corridor or designated architectural resource area

**Figure 3.2.1  
Tuolumne River and  
Dry Creek Scenic Resource Areas**



***B. Potential Significant Impacts:***

***Aesthetic Impacts Found Not to be Potentially Significant:***

As a result of data analysis, based on data collected in the evaluation of the city's general plan goals, policies, programs, standards and implementation strategies, the following aspects of a potential aesthetic impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Have a substantial adverse effect on a scenic vista?*

The city of Waterford is presently an urban area surrounded by agricultural land uses. Implementation of the general plan would result in increased urban growth, which could alter the visual setting or character of the Planning Area located along the city's eastern, northern and western edges. This additional development could be perceived as a negative aesthetic impact in comparison to its current state.

At the same time the Waterford small community "urban" center, surrounded by rural land and farmland, creates a visual contrast that complements the neighboring scenic fabric and provides an interesting contrast that can be seen as "enhancing" the scenic value of the region. While development consistent with the general plan would alter the visual setting and the scenic vistas of the area as it converts from agricultural use or vacant to development, the plan promotes the preservation, protection, and promotion of the existing aesthetic features of Waterford and applies standards that meet these goals to new development. The views of major landscape features, including the Tuolumne River and Dry Creek Corridors, would remain visible. (See Figure 3.2.1)

- *Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

There are no scenic highways, rock outcroppings or other terrain features that could be adversely impacted by growth and development in the city except within the Dry Creek and Tuolumne River corridors. The project does not have any direct adverse impacts on other scenic resources of the city.

Because the Planning Area is largely flat in topography and mostly undeveloped, modifications of it would be noticeable from the major thoroughfares entering the city, such as the Waterford / Oakdale Highway and State Route 132. The character of the undeveloped portions of the Planning Area would be altered. However, implementation of current design guidelines would reduce this potential impact.

- *Substantially degrade the existing visual character or quality of the site and its surroundings?*

The adoption of the general plan will not directly result in any construction activity that could have an impact on the visual character or quality of the city. Development projects can be expected to be proposed in accordance with the plan and other related development regulations in the city. All development designs are subject to review by the city and would be reviewed according to city regulations such as building design, landscaping and setbacks. These projects will need to be evaluated on a case-by-case basis utilizing appropriate visual character and quality impact methodologies contained in the city's Architectural Design Guidelines and the policies and standards contained in the general plan Urban Design Chapter.

- *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

For safety and security reasons, streets and parkways will require nighttime lighting as part of the urban development process. This lighting, both public and private, will increase the



overall night environment of the city. The increased background urban lighting is not substantial by normal urban standards. city development review processes contain adequate provisions to assure that excessive light and glare are not created by individual project developments.

*Aesthetic Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential aesthetic impact is expected to result in a significant adverse environmental impact due to project implementation:

***C. Proposed General Plan Goals & Policies:***

■ ***Goal Area: Open Space (OS)-Preserve Scenic Corridors and Resources***

***Policy:***

**OS-A.2** Preserve and enhance the Tuolumne River and Dry Creek in their natural state throughout the planning area.

**OS-A.3** Promote the protection and enhancement of designated scenic routes.

■ ***Goal Area: Urban Design (UD) A Rural Community with a Unique Identity***

***Policy:***

**UD-10** Maintain and enhance the unique community appearance of Waterford.

■ ***Goal Area: Urban Design (UD) A Well Defined Urban Center***

***Policy:***

**UD-3** Provide for a vibrant downtown center.

**UD-8** Promote urban landmarks & public art.

***D. Short-Term Impacts:***

There are no physical short term effects of the project. The general plan, as a policy document, is not likely to have any direct impacts on the existing scenic vistas, urban aesthetic or lighting environments.

***E. Long-Term Impacts:***

The long term effects of the project is that rural vistas that presently exist along the urban fringe of the city may be replaced with urban vistas, new development/redevelopment, in-fill development and new light sources. Implementation of the plan could result in changes to view-sheds along Dry Creek and the Tuolumne River.

***F. Cumulative Impacts:***

The cumulative effects of the project are that the existing pattern of urban development will be expanded within the city's Urban Planning Area or Sphere of Influence over time. It is expected that through the application of sound planning principles, as reflected in the city's development regulations, the overall urban aesthetic environment will be improved and enhanced with new development over the planning horizon. Plan implementation could provide new visual and physical access to the Tuolumne River and Dry Creek corridors.

***G. Secondary Impacts:***

Implementation of aesthetic standards and policies will increase costs of development and could have an impact on how investment is made in the community.

***3.2.4 Mitigation Measures***

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As part of the city's development review program, individual development projects are typically reviewed to determine the project's potential impact on scenic resources and the overall aesthetic impact on the community. Larger projects may be required to prepare special studies that simulate a project's visual/aesthetic impacts. As a result of these studies, specific project level mitigation measures are required as part of the project's conditions of approval.

Mitigation to the impact on the visual character of Waterford and its planning area is addressed through specific project design mitigation. On the basis of the environmental standards and evaluative methodologies employed in this analysis, it has been determined that the adoption and implementation of the Waterford General Plan is not likely to result in any significant adverse physical impact on the aesthetics of the community or surrounding area; therefore, no mitigation is necessary beyond the policies, standards and implementation measures set forth in the general plan.

***3.2.5 Level of Significance After Mitigation***

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Projects that are undertaken in a manner consistent with the policies and standards of the City of Waterford General Plan, and comply with all appropriate state and local Uniform Building Code (UBC) construction regulations, will not result in the creation of a significance adverse physical impact on the aesthetic environment of the city.

## ***Section 3.3***

### ***Agricultural Resources***

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This environmental issue focuses on the impacts of a project on farmland and agricultural productivity. Environmental concerns focus on the loss of agricultural cropland as inventoried by the Farmland Mapping and Monitoring Program of the California Resources Agency and the Stanislaus County Soils Map, and impacts on agricultural zoning and Williamson Act Contract land mapping for Stanislaus County. An additional area of concern is the potential changes resulting from a project that could lead to future conversion of agricultural lands to non-agricultural uses.

#### ***3.3.1 Environmental Setting***

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As cities and towns in the central Valley grow and extend beyond existing boundaries, farmland is converted to urban uses. This threat to farmland and the agricultural economy in the area, which ranges from Sutter county in the north to Kern county in the south, has been the focus of various studies and research projects within both private and public sectors.

#### ***Soil Resources***

The city of Waterford is situated within an area containing very important soils capable of producing a wide range of agricultural products. Throughout the region, urban expansion has resulted in these valuable soils being converted to non-agricultural uses.

The long-term economic health and vitality of Waterford is linked to maintaining the agricultural productivity of the region. Many factors influence agricultural production capability. Soil type is a basic measure of agricultural value. While other factors influence agricultural production capacity, (water availability, support infrastructure, markets, nuisance and adjacent uses, etc.), soil capability is a primary limiting factor with respect to crop production.

It is also important that these unique “prime” soils be in large enough concentrations that they can support an economically viable farming operation.

It should be noted that some types of agricultural productivity are not as dependent on quality soils as others. As an example, dairy and poultry farms do not need to be situated on quality soils.

#### ***Economic Impact of Agriculture***

A ten-year old report published by American Farmland Trust in (1995), entitled *Alternatives for Future Urban Growth in California's Central Valley: The Bottom Line for Agriculture and Taxpayers*, found that the region's \$13 billion a year industry will incur increasing pressure as the current population triples by the year 2040. The study analyzed impacts on agriculture under two different growth scenarios: Low-density urban sprawl and compact growth.

The former is based on a gross residential density of three dwelling units per acre that approximates the density of current urban development in much of the central Valley. The latter is a more compact, efficient growth pattern based on a gross density of six dwelling units per acre, which is intended to represent a relatively conservative, realistically achievable goal for new development in the valley. The study estimated that:

- Low density urban sprawl would consume more than 1-million acres of farmland by 2040. Approximately 60 percent of this is likely to be “prime” farmland and “farmland of statewide importance”. In addition, agriculture would experience increased risks and costs, and lower productivity, within a one-third mile wide (2.5 million acre) “zone of conflict” around urban areas. By contrast, more compact, efficient growth would reduce farmland conversion to 474,000 acres, including 265,000 acres of “prime” and “important” farmland, and would shrink the zone of conflict to 1.6 million acres.
- Low-density urban sprawl would reduce direct agricultural commodity sales by \$2.1 billion a year, and related sales of suppliers, processors and other agricultural support businesses by \$3.2 billion annually. Compact, efficient growth would reduce commodity sales by \$970 million annually and related sales by \$1.5 billion. The cumulative loss of direct and indirect agricultural sales between now and the year 2040 would be \$72 billion higher for low-density urban sprawl than for compact, efficient growth.
- The cost of providing current level public services to low-density urban sprawl would exceed the revenues of central Valley cities by about \$1 billion annually, necessitating a reduction of services or an increase in taxes. Compact, efficient growth would produce an annual budget surplus of \$200 million, enabling services to be maintained or slightly improved. The cumulative 1992-2040 difference in the cost of taxpayer-financed services between low-density urban sprawl and compact, efficient growth will be in the range of \$29 billion.

### ***Agricultural Economy of Stanislaus County***

Stanislaus County is among the top agricultural product producing counties in the State of California. In terms of agricultural productivity, the county of Stanislaus ranks sixth (2004) statewide.

Stanislaus County’s agricultural production was valued at \$1.978 billion in 2004. This represents an increase of \$523.5 million (approximately 36%) from the 2003 gross production value of \$1.455 billion.

Fruit and nut crop production, according to information contained in the 2004 Stanislaus County Department of Agriculture’s Annual Report, included 154,000 harvested acres and produced \$616.4 million in estimated value. Fruit and nut crop production is the largest income producing agricultural commodity in the county, followed by livestock and poultry products (\$574.5 million) and livestock and poultry production (\$403.2 million).

Total agricultural production figures, however, do not reflect the “real” economic impacts of agriculture on the county. The value of secondary services and employment impacts tied to agricultural production is considerable. Based on data developed in San Joaquin county in 1981 (*Economic Impacts of Agricultural Production and Processing in Stanislaus County*), the total economic value of agricultural productivity ranges from a low of 2.9 times production value for nursery products to 6.8 times production value for vegetable crops. Over all, the value of agricultural crop production (excluding livestock & poultry production) totaled over \$2.5 billion in San Joaquin county (1975). This resulted in an average multiplier of 3.7.

**Table 3.2.1  
Agricultural Productivity  
In Stanislaus County  
2004**

<b>Agricultural Product</b>	<b>Harvested Acres</b>	<b>Production Value (\$000s)</b>
Fruits & Nuts	154,000	\$616,452
Field Crops	607,000	\$137,871
Vegetables	49,000	\$125,903
Seed Crops	510	\$401
Nursery Products	2,501	\$111,272
Livestock & Poultry Products	-	\$574,465
Livestock & Poultry Production	-	\$403,205
Apiary Products	-	\$8,865
<b>Total</b>	<b>813,011*</b>	<b>\$1,978,434,000</b>

**Note:** \* Harvested acres includes multiple harvests.

Source: 2004 Ag Crop Report Stanislaus Co.

The Farmland Mapping & Monitoring Program, operated by the California Department of Conservation, estimated that 29.99% of the county's farmland was considered "Prime" compared to 6.5% of the county being classified as "urban and built-up" in 2002. Of the total 6,480 acres of farmland converted to other uses, 3,391 acres were classified as "Prime" and 2,044 acres (37.3%) of this land was converted to "Urban and Built-Up" uses and 1,572 (45.9%) to "Other" land. The balance was reclassified to other agricultural uses.

#### ***Agricultural Economics of Waterford***

Agriculture provides limited employment opportunities in Waterford. In 2000 3% of the workers were employed in agriculture compared to 9% county-wide. Median income of agricultural employees was \$16,618 compared to the overall (2000) median income in the city of \$39,286. Comparable figures for Stanislaus County were \$16,618 median income for agricultural employees compared to \$43,340 overall median income for the county.

Field surveys of the area, combined with aerial photographs of the expansion area, indicate that:

- Agricultural crop land in the planning area is primarily irrigated crop land, orchard and pasture.
- Dairy and poultry production is not a significant agricultural activity in the immediate area due to the extensive urbanization and nuisance conflict potential.
- Field crop types vary from year to year depending on management practice and market conditions.

- While most of the Class 1 or “Prime” soils in the city’s Planning Area tend to be located to the west and northwest of the incorporated city, Williamson Act Contract lands tend to be located to the east and northeast of the city.

***California Department of Conservation Farmland Mapping***

Pursuant to provisions of Section 65570 of the California Government Code, the California Department of Conservation has prepared Important Farmland Maps through its Farmlands Mapping and Monitoring Program (FMMP). Under this program mapping, monitoring and reporting of farmland and grazing land, in addition to urbanized areas, is being carried out every two years in 45 counties throughout California.

Important Farmland Maps do not necessarily reflect general plan or zoning designations, city limit lines, urban needs, changing economic conditions, proximity to market, and other factors which may be taken into consideration when agricultural land use policies are determined. The system is primarily based on soil type, as discussed above, and use. Prime soils, which are presently developed with urban uses, are not considered as ***Farmland*** under this system.

The city of Waterford has been mapped, as has Stanislaus County. The mapping program has the following eight categories that are:

***“P” PRIME FARMLAND***

Land with the best combination of physical and chemical features for the production of agricultural crops. It has the soil quality, growing season and moisture supply need to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. ***Prime Farmland*** must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural uses.

***“S” FARMLAND OF STATEWIDE IMPORTANCE***

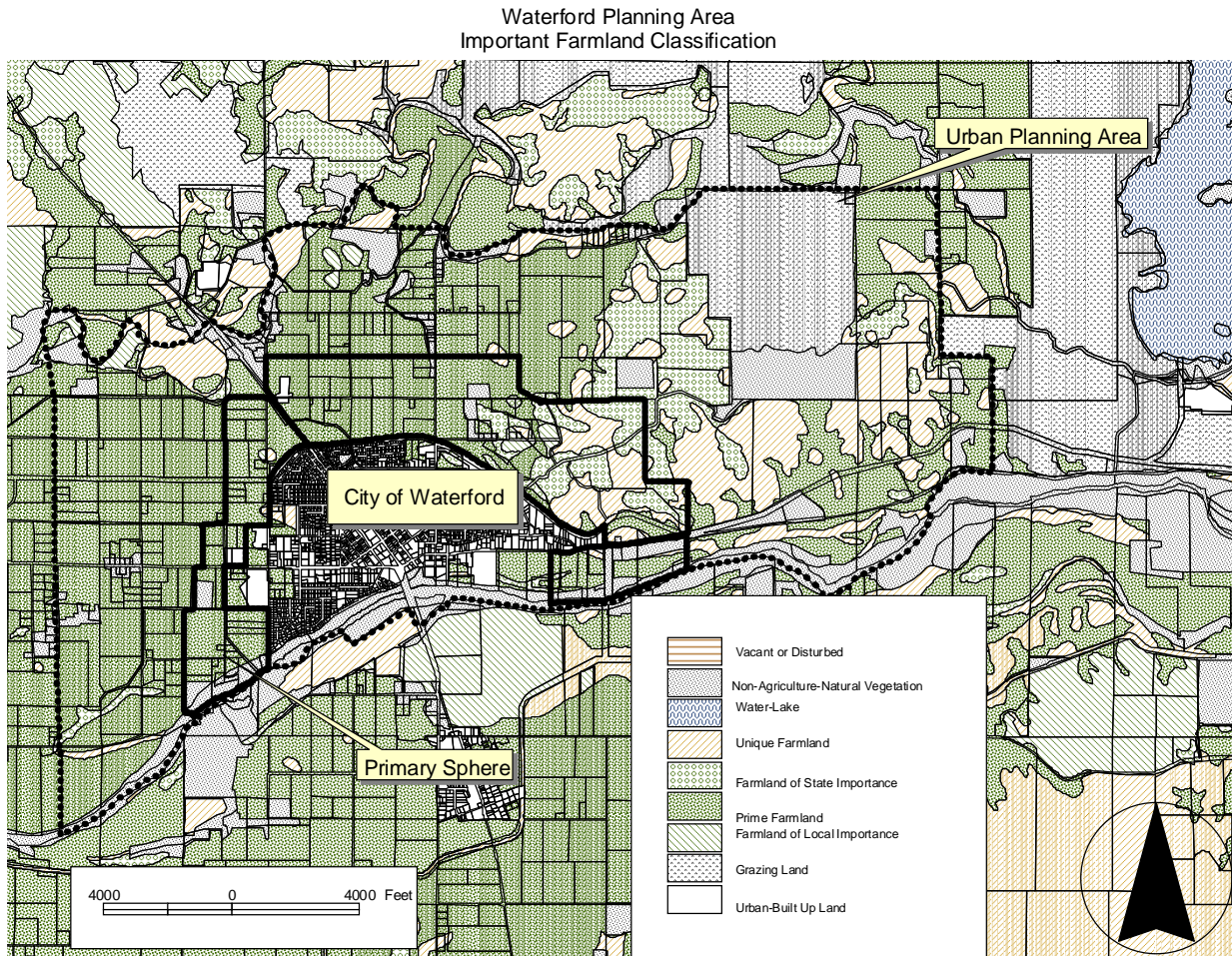
Land, other than ***Prime Farmland***, which has a good combination of physical and chemical features for the production of crops. It must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural uses.

***“U” UNIQUE FARMLAND***

Land which does not meet the criteria for ***Prime Farmland*** or ***Farmland of Statewide Importance***, that has been used for the production of specific high economic value crops ( as listed in California Agriculture produced by the California Department of Food and Agriculture) at some time during the two update cycles prior to the mapping date. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include

publicly owned lands for which there is an adopted policy preventing agricultural uses.

### Exhibit 3.3.1 Waterford Area Important Farmland Map



#### ***“L” FARMLAND OF LOCAL IMPORTANCE***

Lands that either currently produce crops, or have the capability of production. *Farmland of Local Importance* is land other than *Prime Farmland*, *Farmland of Statewide Importance*, or *Unique Farmland*. This land may be important to the local economy due to its productivity. It does not include publicly owned lands for which there is an adopted policy preventing agricultural uses.

#### ***“G” GRAZING LAND***

Land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing or browsing of livestock. The minimum unit for *Grazing Land* is 40 acres.

**“D” URBAN AND BUILT-UP LAND**

Land occupied by structures or infrastructure to accommodate a building density of at least one unit to one and one-half acres, or approximately six structures to ten acres.

**“X” OTHER LAND**

Land which does not meet the criteria of any other category.

**“W” WATER**

Water bodies of 40 or more acres in size.

*Agricultural Land Conservation (Williamson) Act*

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a tax relief measure for owners of farmland. The Act permits a landowner, whose land is used for farming, to sign a contract with the county guaranteeing that the land will continue to remain in farming for a period of at least ten years. In return for this guarantee, the county assesses taxes based on the agricultural value of the land rather than the market value. Generally this means that taxes for the farmer are reduced, sometimes greatly. The county is then reimbursed for the lost property tax revenue by the State of California.

In order to be eligible for the Williamson Act under Stanislaus County regulations, the land must be zoned A-2 (General Agriculture) and used as permitted by that zoning district.

In most cases, the Williamson Act will lower property taxes. Those people who purchased their property recently will usually benefit the most. In return for lower taxes, the owner guarantees that the property will remain zoned A-2 (General Agriculture) for a period of at least ten years. While the agreement does not affect the right to sell the property, the contract will continue to affect the use of the property for a new purchaser. Future property owners will be prevented from using the property for anything that isn't allowed in the A-2 zone. Some uses that are permitted by “Use Permit” may not be consistent with the contract.

When a Williamson Act contract is signed, it is good for a period of ten years. After the first year of that ten year period, one more year is automatically added to the term of the contract so that it is always valid for ten years.

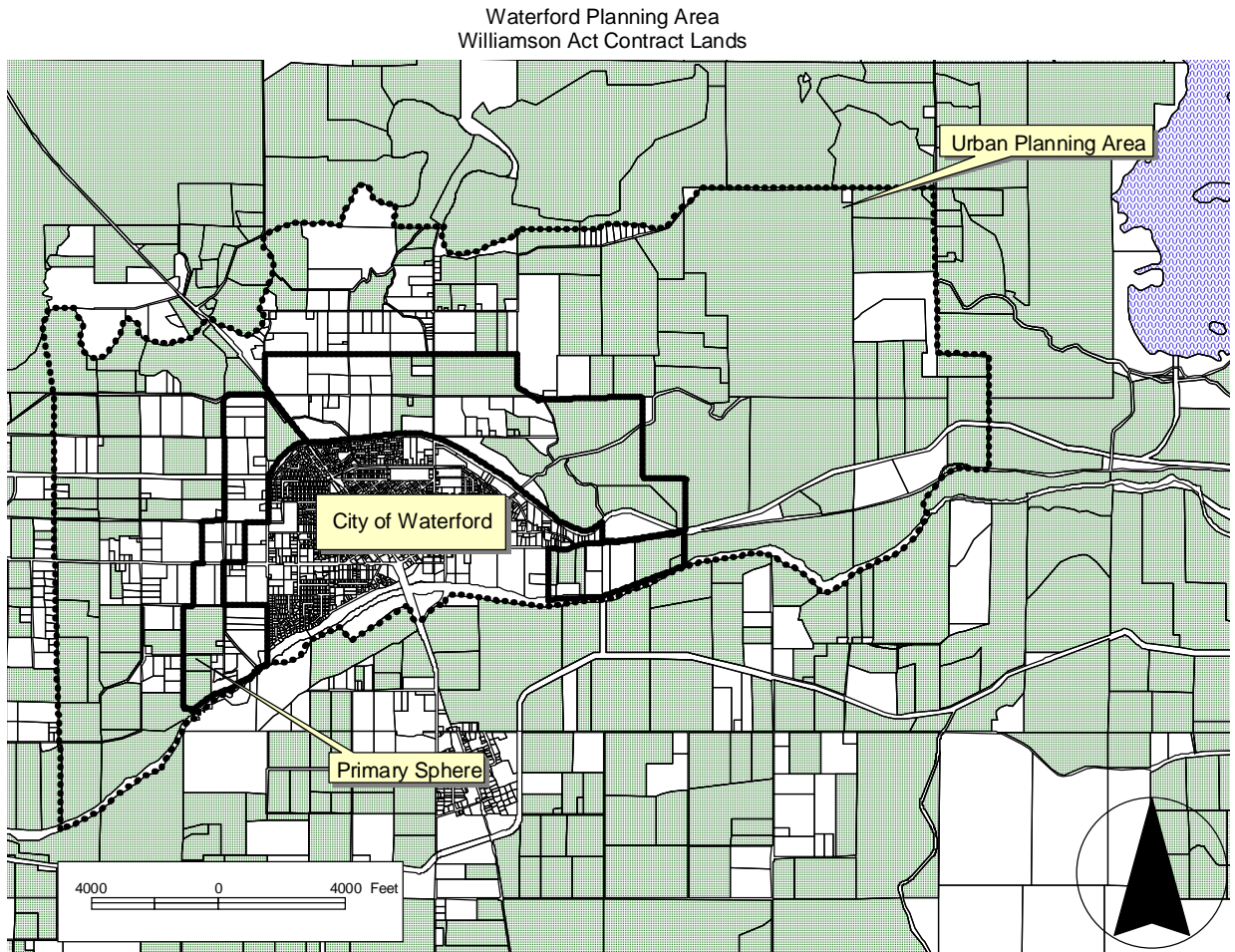
The automatic renewal provision of the contract stops if either the property owner or the county files a "Notice of Non-Renewal". Once the notice is signed and properly filed with the county, the county will cease to renew the contract and it will expire in approximately ten years. Upon filing of a Notice of Non-Renewal, property taxes will start to increase so that at the end of ten years, the taxes will be the same as if the property was never under contract.

In the alternative, a property owner may apply to cancel the contract, effective immediately. In order for the contract to be canceled, the governing body (board of supervisors/city council) must hold a public hearing on the request and make several findings as required by state law. These findings are very difficult to make and such requests are seldom approved. Should the governing body make the findings required by state law and agrees to cancel the contract, the approval is



valid if the property owner pays a cancellation fee of 1/8th (12½%) of the current market value of the property. This fee is paid to the State of California.

**Exhibit 3.3.2**  
**Williamson Act Contract Map**



As noted above, cancellation of a Williamson Act Contract requires that a local governing body make specific findings. These findings are as follows:

- “ (1) That the cancellation is for land on which a notice of non-renewal has been served pursuant to Section 51245.
- (2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.
- (3) That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.

(4) That cancellation will not result in discontinuous patterns of urban development.

(5) That there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.”

As of 1998, Stanislaus County contained a total of 692,503 acres of land contracted under the Williamson Act. The distribution of Williamson Act contracts in the Waterford area is shown in Figure 3.3.2.

***Stanislaus County Local Agency Formation Commission (LAFCo)***

Urban growth and expansion, under California state law, is subject to a local review body called the Stanislaus County Local Agency Formation Commission (LAFCo). This body, comprised of city and county elected officials, must review and approve all municipal boundary revisions (annexations).

In Stanislaus County, a Sphere of Influence (SOI) contains a primary and a defined future urban expansion area. The primary sphere is designated in an area that is eligible for annexation to a city within a ten-year time frame. The Sphere of Influence covers an area that is set aside to accommodate twenty years of future growth. A city must demonstrate that it 1) has an identified growth “need” for this future expansion area and, 2) has the capacity to provide urban services to the potential new urban area. A third critical element in the “sphere” approval process is the encroachment of a city onto “prime” agricultural land. LAFCo rules, and state law, clearly states that a Sphere expansion into areas that contain “prime” agricultural soils cannot be approved unless there is no alternative “non-prime” area available for urban expansion.

Stanislaus County LAFCo has adopted a set of local LAFCo goals, objectives, and policies to address local concerns and priorities regarding annexations and the preservation of agricultural-land.

The following enumerated items comprise the statement of purpose adopted by Stanislaus LAFCo for spheres of influence:

1. To promote orderly growth of communities, whether or not services are provided by a city or district (board governed or independently governed);
2. To promote coordination of cooperative planning efforts among the county, cities, special districts, and identifiable communities by encouraging compatibility in their respective general plans;
3. To guide timely changes in jurisdiction by approving annexations, reorganizations etc., within a sphere of influence only when reasonable and feasible provision of adequate services is assured;

4. To encourage economical use and extension of facilities by assisting governmental agencies in planning the logical and economical extension of governmental facilities and services, thereby avoiding duplication of services;
5. To provide assistance to property owners in relating to the proper agency to comprehensively plan for the use of their property;
6. To review, update, and/or change existing spheres of influence periodically to reflect planned, coordinated changes in factors which impact spheres of influence; and,
7. To encourage the establishment of urban-type services only within an adopted sphere of influence.

The commission emphasizes that a sphere of influence is a planning tool and the establishment of a sphere of influence, or the inclusion of territory within a sphere of influence of an existing governmental entity, does not automatically mean that the area is being proposed for annexation or development. (*Stanislaus LAFCo Policies and Procedures Manual GENERAL POWERS & POLICY GUIDELINES SECTION 4* Page 1)

Stanislaus LAFCo policies also address the conversion of agricultural land to urban uses specifically. Within the LAFCo “Statement of Intent” policies four and five state:

4. The adopted Primary Area and Sphere of Influence shall reflect city and county general plans, growth management policies, the county-wide Visioning Plan, annexation policies, resource management policies, and any other policies related to the ultimate boundary and service area of an affected agency unless those plans or policies conflict with the legislative intent of the Cortese-Knox-Hertzberg Reorganization Act (Government Code Section 56000 et. seq.).

Where inconsistencies between plans exist, LAFCo shall rely upon that plan which most closely follows the legislature’s directive to discourage urban sprawl, direct development away from prime agricultural land and open-space lands, and encourage the orderly formation and development of local governmental agencies based upon local conditions and circumstances.

5. Sphere of Influence boundaries shall, to the extent possible, maintain a separation between existing communities to protect open space and agricultural lands and the identity of an individual community.

This “Intent” is supported by the following Sphere of Influence policies:

4. Territory not in need of urban services, including open space, agriculture, non- protested, or protested and not upheld Williamson Act contracted lands, shall not be assigned to an agency’s sphere of influence, unless the area’s exclusion would impede the planned, orderly and efficient development of this area.
5. LAFCo may adopt a Primary Area and Sphere of Influence that excludes territory currently within that agency’s boundaries. This occurs where LAFCo determines that the territory consists of agricultural lands,

open space lands, or agricultural preserves whose preservation would be jeopardized by inclusion within an agency's sphere of influence. Exclusion of these areas from an agency's sphere of influence indicates that detachment is appropriate.

### ***3.3.2 Environmental Impacts***

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As the city grows, it is inevitable that agricultural land will be converted to an urban use within the city's Sphere of Influence (SOI). The city is surrounded by prime and statewide important farmland to the north, south, and west. As the city grows, agricultural land inevitably will be converted to urban use within the city's adopted urban planning boundary.

#### ***A. Thresholds of Significance***

The preservation of "prime" agricultural soils and maintenance of agricultural production capacity of the State are identified CEQA priorities. From the checklist in the CEQA Guidelines, threshold environmental standards have been developed to identify potential significant impacts to agricultural land. Appendix "G" of the CEQA Guidelines addresses potential impacts on Agricultural Resources as follows:

#### ***Would the project:***

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use?

### ***ASSESSMENT OF AGRICULTURAL SOILS***

#### **DEFINITION OF ISSUE**

This issue addresses the direct loss of agricultural soils utilized or suitable for agricultural crop production, due to removal or permanent over-covering, and indirect loss due to increased wind or water erosion.

#### **DEFINITION OF AGRICULTURAL SOILS**

Pursuant to provisions of Section 65570 of the California Government Code, the California Department of Conservation has prepared Important Farmland Maps through its Farmland Mapping and Monitoring Program (FMMP).

The mapping program has the following eight categories:

“P”	PRIME FARMLAND
“S”	FARMLAND OF STATEWIDE IMPORTANCE
“U”	UNIQUE FARMLAND
“L”	FARMLAND OF LOCAL IMPORTANCE
“G”	GRAZING LAND
“D”	URBAN AND BUILT-UP LAND
“X”	OTHER LAND
“W”	WATER

#### THRESHOLD CRITERIA

Any project which would result in the direct or indirect loss of soils designated Prime “P”, Statewide significance “S”, Unique “U”, or Local “L” significance will have an impact. Any project which would result in the direct and indirect loss of agricultural soils meeting or exceeding the following criteria will be considered as having a significant project impact:

- A. Any project site located on land designated as “agriculture” in the general plan or zoned for agricultural uses where the project will result in the loss of
- 5 or more acres of “P” or “S” designated farmland
  - 10 or more acres of “U” designated farmland
  - 15 or more acres of “L” designated farmland.
- B. All other projects proposed on unimproved land zoned for or planned for urban uses and that will result in the loss of:
- 20 or more acres of “P” or “S” designated farmland
  - 30 or more acres of “U” designated farmland
  - 40 or more acres of “L” designated farmland.

Any project that would not meet the above criteria, although it could result in the incremental loss of some agricultural soils, is considered as having a de minimus contribution to an otherwise significant cumulative impact.

- C. Any project that would result in the termination of a Williamson Act Contract would be considered to have a significant adverse impact on agriculture.

#### ***AGRICULTURAL LAND USE INCOMPATIBILITY***

##### DEFINITION OF ISSUE

Land uses which may be incompatible with adjacent agriculturally zoned or Williamson Act Contract Land due to its impact on agriculture (e.g., vandalism) or being impacted by agriculture (e.g., chemical spraying). Agricultural production includes both growing of agricultural crops for food, fiber, fuel and ornament, and animal husbandry.

#### THRESHOLD CRITERIA

Any non-agricultural land use/development that, by its nature, may pose substantial land use incompatibilities with adjacent property zoned Exclusive Agricultural or under Williamson Act Contract may have a significant impact.

Although this determination must be made on a case-by-case basis, the following land use situations are considered potentially significant:

1. Residential development within 1,000 feet of a dairy or poultry farm.
2. Residences within 400 feet of irrigated agriculture.
2. Residences within 200 feet of dry farming.
3. Residences within 100 feet of grazing lands.
4. Residential subdivisions, adjacent to land zoned Exclusive Agricultural or under Williamson Act Contract, which do not provide perimeter fencing sufficient to keep human and livestock/pets from crossing property lines.
5. Cumulative development that would have a substantial effect on agricultural production, management and/or cultural practices in an area zoned Exclusive Agricultural or under Williamson Act Contract (e.g., movement of farm equipment, spraying of farm chemicals, vandalism).

***B. Potential Significant Impacts:***

*Agricultural Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, all impacts to agricultural lands can be considered significant.

*Agricultural Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, the following aspects of a potential agricultural impact may result in a significant adverse environmental impact due to project implementation:

- *Conflict with existing zoning for agricultural use, or a Williamson Act contract?*

By law, zoning must be consistent with the general plan and Williamson Act contracts must be consistent with zoning. The Waterford General Plan is the primary agricultural resource goal document for the City of Waterford. Other applicable goal and policy documents include the Stanislaus County General Plan and the Stanislaus County Local Agency Formation Commission policies and provisions. The Waterford General Plan is compatible with, and supports, these broader agricultural resource goals, policies and standards. As a matter of practice, county zoning in rural areas is typically agricultural in nature and the process of reconciling conflicts between zoning and land use differences between the county of Stanislaus and its cities is the amendment of the county general plan land use designation and the adoption of the city's proposed SOI. This process will be carried out in accordance with state law and local policy.

- *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

The Waterford General Plan will result in development review policies and standards that will encourage the conversion of approximately 1,610 acres of land designated as "Prime" "Unique" or of "Statewide Importance" to non-agricultural uses.

- *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use?*

- 

Expansion of the urban population in Waterford will create potential conflicts between urban uses and some types of agricultural uses and management practices. Dairies, chicken and poultry raising are types of agricultural uses that conflict with urban uses due to the creation of odor. At the same time, the spraying of pesticides, herbicides and the use of other agricultural chemicals can create health hazards for human populations. In general, these impacts do not eliminate agricultural use but modify the types of agricultural uses and practices that can be pursued on a piece of property adjacent to an urban area.

***C. Proposed General Plan Goals & Policies:***

The Stanislaus County General Plan contains goals and policies that address natural resources and the conservation of agricultural land. Specifically, proposed Stanislaus County General Plan goals and policies address agricultural land conservation concerns as follows:

- **Land Use Element Policy 2.** Land designated “Agriculture” in the Land Use Element shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation and enjoyment of scenic beauty.
- **Land Use Element Policy 10.** New areas for urban development (as opposed to expansion of existing areas) shall be limited to less productive agricultural areas.
- **Land Use Element Policy 14.** Uses shall not be permitted to intrude into or be located adjacent to an agricultural area if they are detrimental to continued agricultural usage of the surrounding areas.
- **Land Use Element Policy 16.** Agriculture, as the primary industry of the county, shall be promoted and protected.
- **Conservation and Open Space Element Policy 11.** In areas designated “Agriculture” in the Land Use Element, discourage land uses that are incompatible with agriculture.
- **Agricultural Element Policy 1.8.** Concentrations of commercial and industrial uses, even if related to surrounding agricultural activities, are detrimental to the primary use of the land for agriculture and shall not be allowed.
- **Agricultural Element Policy 1.10.** The county shall continue to implement its Right-to-Farm ordinance.
- **Agricultural Element Policy 1.11.** The county shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed nonagricultural uses and adjacent agricultural operations.
- **Agricultural Element Policy 1.12.** Setbacks from agricultural areas shall be established to minimize adverse impacts of adjacent uses on agriculture.
- **Agricultural Element Policy 2.3.** To reduce development pressures on agricultural lands, higher-density development and in-filling shall be encouraged in urban and built-up areas of the county.
- **Agricultural Element Policy 2.4.** To the greatest extent possible, development shall be directed away from the county’s most productive agricultural areas.
- **Agricultural Element Policy 2.10.** The county shall continue to encourage the upgrading of existing unincorporated areas.

- **Agricultural Element Policy 2.11.** The county shall discourage the expansion of spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities into its most productive agricultural areas.
- **Agricultural Element Policy 2.12.** When the county determines that the proposed conversion of agricultural land to nonagricultural uses could have a significant effect on the environment, the county shall fully evaluate on a project-specific basis the direct and indirect effects, as well as the cumulative effects of the conversion.
- **Agricultural Element Policy 2.13.** To the greatest extent feasible, the county shall require mitigation of the impacts of farmland conversion

The Waterford General Plan contains several specific goals and policies that address identified potential adverse impacts associated with natural resources and the conservation of agricultural land. Specifically, proposed general plan goals and policies address agricultural land conservation concerns as follows:

***Conversion of Prime Ag-Land to Non-Ag Uses:***

The Waterford General Plan contains several specific goals and policies that address identified potential adverse impacts associated with urban type development on “prime” agricultural land. General plan goals and policies relative to this issue are the following:

■ **Goal Area: Urban Expansion (UE) An Effective Agriculture/Urban Area Interface.**

**Policies:**

**UE-2** Designate areas for new urban development which reflect the physical characteristics and environmental constraints of the planning area.

**UE-3** The city shall *accommodate* urban development on non-prime soils, whenever feasible.

***Impairment of Agricultural Productivity:***

The Waterford General Plan contains a specific goal and policy to address identified potential adverse impacts associated with agricultural productivity. This goal and policy states:

■ **Goal Area: Sustainable Development (SD) A Sustainable Agricultural Economy.**

**Policy:**

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

***D. Short-Term Impacts:***

Designation of areas within the city's SOI for future conversion to non-agricultural uses may result in agricultural management practices that minimize long-term productivity and maximize short-term agricultural productivity.

***E. Long-Term Impacts:***

On the basis of this analysis, it has been determined that the conversion of “prime” agricultural soils to non-productive agricultural uses is a “significant” adverse impact resulting from the implementation of the Waterford General Plan. In order to achieve the goals of maintaining a compact urban form, and other types of land-use compatibility issues, mitigation that would eliminate this loss is not possible.



***F. Cumulative Impacts:***

As previously noted, the American Farmland Trust has conducted studies that evaluate the potential population growth impacts in the central Valley through the year 2040. It is expected that population in this region will grow substantially with an addition of 1.8 million people during this time period. As a result, a projected 360,000 acres of land, most of which will be farmland, will be converted to urban uses.

In Stanislaus County, between 2000 and 2002, a total of 3,391 acres of “prime” farmland were converted to urban and other non agricultural uses. (2002 Farmland Conversion Report) This conversion total represents approximately 1.3% of the 260,730 total “prime” farmland acres in Stanislaus County in 2002.

With increased urbanization in the valley, other impacts are affecting agricultural productivity. Increased population results in increased urban water use, which reduces supplies that would otherwise be available for agricultural use. Increased demand for water increases water costs which, in turn, results in marginal agricultural activity becoming impractical.

Increased growth also means more roadways to accommodate heavier traffic loads. Regional roadways are typically constructed on low cost agricultural lands. Increased traffic also results in increased air emissions. Ozone damages plants by reducing their synthesis of chlorophyll, causing the plant’s carbohydrate levels to fall and curtailing new tissue production. In severe exposures, plants suffer leaf burn, a condition that damages appearance and reduces the marketability of many crops.

***G. Secondary Impacts:***

Plan policies that will conserve prime agricultural soils and promote agricultural productivity could have adverse secondary environmental effects. The limiting of land available for housing and related services will result in increasing housing costs which could, in turn, increase the cost of labor for surrounding agricultural employers.

***3.3.3 Mitigation Measures***

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Beyond the policies of the general plan, there is no practical mitigation that can be imposed that would mitigate the adverse impacts on agriculture in the Waterford urban area.

***3.3.4 Level of Significance After Mitigation***

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Expansion of the city’s urban area will result in the loss of “prime” cropland in the region. This loss cannot be mitigated. Overall adverse impacts of projected population growth on the agricultural resources in the region would be reduced as a result of project implementation. Implementation of the Waterford Vision 2025 General Plan Update will accommodate projected future increases in people and jobs in the Waterford urban area in a manner that produces the least amount of loss of productive agricultural land. Potential adverse impacts are deemed to be minimized to the maximum degree possible as a result of proposed plan implementation policies. As a result of the analysis of potential project impacts on agriculture, it can be concluded that the project is will convert “prime” soils to non-agricultural production uses and result in the need to cancel Williamson Act contracts on productive agricultural land. This is considered a “significant” and adverse impact under CEQA.

## ***Section 3.4***

### ***Air Quality***

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This environmental issue focuses on the impacts of a project on air quality. Issues over project consistency with applicable air quality plans, policies and regulations, increases of any pollutant for which the area has been designated as a “non-attainment” area. Additional concerns are over the exposure of sensitive receptors, such as people, to high levels of air pollution or odors.

#### ***3.4.1 Environmental Setting***

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***Climate and Topography*** Stanislaus County is located in the San Joaquin Valley Air Basin (SJVAB). The SJVAB, which is approximately 250 miles long and averages 35 miles in width, is the second largest air basin in the state. The SJVAB is defined by the Sierra Nevada mountains on the east (8,000–14,000 feet above sea level), the Coast Range on the west (averaging 3,000 feet above sea level), and the Tehachapi mountains on the south (6,000–8,000 feet above sea level). The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits, where the Delta empties into San Francisco Bay. The San Joaquin Valley could therefore be considered a “bowl” open only to the north.

The SJVAB has an “inland Mediterranean” climate averaging more than 260 sunny days per year. The valley floor experiences warm, dry summers and cool, wet winters. Summer high temperatures often exceed 100°F, averaging in the low 90s in the northern valley and high 90s in the south. In the entire San Joaquin Valley, high daily temperature readings in summer average 95°F.

During the last 30 years, the San Joaquin Valley averaged 106 days per year with 90°F or hotter, and 40 days per year with 100°F or hotter. The daily summer temperature variation can be as high as 30°F.

In winter, as the cyclonic storm track moves southward, the storm systems moving in from the Pacific Ocean bring a maritime influence to the San Joaquin Valley. The high mountains to the east prevent the cold, continental air masses of the interior from influencing the valley. Winters are mild and humid. Temperatures below freezing are unusual. Average high temperatures in the winter are in the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature is 45°F.

Although marine air generally flows into the basin from the Delta, the region’s topographic features restrict air movement through and out of the basin. The Coast Range hinders wind access into the San Joaquin Valley from the west, the Tehachapi prevent southerly passage of airflow, and the high Sierra Nevada is a significant barrier to the east. These topographic features result in weak airflow that becomes blocked vertically by high barometric pressure over the San Joaquin Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500–3,000 feet above sea level).

## **Existing Air Quality Conditions**

### ***Air Quality Pollutants and Ambient Air Quality Standards***

The federal and state governments have established ambient air quality standards for six criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter 10 microns or less in diameter (PM<sub>10</sub>), and lead. Ozone is generally considered a regional pollutant, because it and its precursors affect air quality on a regional scale. Pollutants such as CO, NO<sub>2</sub>, SO<sub>2</sub>, and lead are considered local pollutants that tend to accumulate in the air surrounding the pollutant source. PM<sub>10</sub> and PM<sub>2.5</sub> are considered localized pollutant as well as a regional pollutant. In Stanislaus County, especially east of I-5, PM<sub>10</sub> and ozone are of particular concern.

Air basins are classified as either attainment or non-attainment with respect to state and federal ambient air quality standards. These classifications are determined by comparing actual monitored air pollutant concentrations to state and federal standards. The pollutants of greatest concern in the valley are ozone, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. The state and federal ambient air quality standards are summarized in table 3.4.1.

Ozone is a severe eye, nose, and throat irritant. It is also an oxidant that increases susceptibility to respiratory infections, and can cause substantial damage to vegetation and other materials. Ozone attacks synthetic rubber, textiles, plants, and other materials and can cause extensive cell damage and leaf discoloration in plants.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone primarily is a summer air pollution problem. The ozone precursors ROG and NO<sub>x</sub> are emitted by stationary combustion engines and mobile sources, such as construction equipment.

State and federal standards for ozone have been set for a 1-hour averaging time. The state requires that a 1-hour ozone standard of 0.09 parts per million (ppm) not be violated. The federal 1-hour ozone standard of 0.12 ppm is not to be violated more than three times in any 3-year period. As shown in table 3.4.1, pollutants at the monitoring station have consistently violated the state 1-hour ozone standard during the 3 most recent years for which data are available. The SJVAB is therefore classified as a non-attainment area for the state and federal ozone standards.

### **Carbon Monoxide**

CO is essentially inert to plants and materials but can have significant effects on human health. CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

**Table 3.4.1**

<b>Ambient Air Quality Standards</b>						
<b>Pollutant</b>	<b>Averaging Time</b>	<b>California Standards</b>	<b>1</b>	<b>Federal Standards 2</b>		
		<b>Concentration 3</b>	<b>Method 4</b>	<b>Primary 3,5</b>	<b>Secondary 3,6</b>	<b>Method 7</b>
<b>Ozone (O<sub>3</sub>)</b>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	0.12 ppm (235 µg/m <sup>3</sup> ) <sup>8</sup>	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )*		0.08 ppm (157 µg/m <sup>3</sup> ) <sup>8</sup>		
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic	20 µg/m <sup>3</sup>		50 µg/m <sup>3</sup>		
<b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>	24 Hour	No Separate State	Standard	65 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	15 µg/m <sup>3</sup>		
<b>Carbon Monoxide (CO)</b>	8 Hour	9.0 ppm (1.0 mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	Infrared Photometry (NDIR)	35 ppm (40 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—		
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	Annual Arithmetic	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m <sup>3</sup> )		—		
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	Annual Arithmetic	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m <sup>3</sup> )	0.5 ppm (1300 µg/m <sup>3</sup> ) <sup>3</sup>	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (365 µg/m <sup>3</sup> )		
	3 Hour	—		—		
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )		—		
<b>Lead<sup>9</sup></b>	30 Day	1.5 µg/m <sup>3</sup>	Atomic	—	—	—

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	Calendar Quarter	—	Absorption	1.5 µg/m <sup>3</sup>	Same as Primary Standard	High Volume Sampler and Atomic
<b>Visibility Reducing Particles</b>	8 Hour	Extinction coefficient of visibility of ten miles or more miles or more for Lake Tahoe) particles when relative humidity 70 percent. Method: Beta Transmittance through Filter	0.23 per kilometer — (0.07 — 30 due to is less than Attenuation and Tape.	<b>No Federal Standards</b>		
<b>Sulfates</b>	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
<b>Hydrogen Sulfide</b>	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
<b>Vinyl Chloride 9</b>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			
*This concentration was approved by the Air Resources Board on April 28, 2005 and was to become effective in early 2006.						

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150  $\mu\text{g}/\text{m}^3$  is equal to or less than one. For PM<sub>2.5</sub>, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both state and federal standards are 9 ppm for the 8-hour averaging period. The CO monitoring data collected for the 3 most recent years for which data are available show no violations of the state or federal CO standards. Stanislaus County is classified as an attainment area for the state and federal CO standards.

#### **PM<sub>10</sub> AND PM<sub>2.5</sub>**

Health concerns associated with suspended particulate matter focus on particles small enough to reach the lungs when inhaled. Particulates can damage human health and retard plant growth. Particulates also reduce visibility, soil buildings and other materials, and corrode materials.

PM<sub>10</sub> emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere. The State PM<sub>10</sub> standards are 50 micrograms per cubic meter ( $\mu\text{m}^3$ ) as a 24-hour average and 30  $\mu\text{m}^3$  as an annual arithmetic mean. The federal PM<sub>10</sub> standards are 150  $\mu\text{m}^3$  as a 24-hour average and 50  $\mu\text{m}^3$  as an annual arithmetic mean. The SJVAB is therefore classified as a non-attainment area for the state and federal PM<sub>10</sub> standards.

PM<sub>2.5</sub> emissions are generated by a wide variety of sources, including fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel powered vehicles such as buses and trucks. PM<sub>2.5</sub> refers to particulate matter that is 2.5 micrometers or smaller in size, which is approximately 1/30 the size of a human hair; so small that several thousand of them could fit on the period at the end of this sentence. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds (all of which are also products of fuel combustion) are transformed in the air by chemical reactions. The state PM<sub>2.5</sub> standard is 12 micrograms per cubic meter ( $\mu\text{m}^3$ ) as an annual arithmetic mean. The federal PM<sub>10</sub> standards are 65  $\mu\text{m}^3$  as a 24-hour average and 15  $\mu\text{m}^3$  as an annual arithmetic mean. The SJVAB is therefore classified as a non-attainment area for the state and federal PM<sub>2.5</sub> standards.

#### **3.4.2 Environmental Impacts**

Development activities associated with implementation of general plan update are expected to encourage new job-producing tourism, residential, commercial, and industrial development in the city of Waterford. Consequently, additional vehicle trip generation and resultant mobile source emissions of air pollutants, may occur. New industries accommodated in the city may produce air or liquid waste and/or emissions with unpleasant odors.

##### **A. Thresholds of Significance**

Appendix “G” of the CEQA Guidelines addresses potential impacts on Air Quality as follows:

***Could The Project:***

- Conflict with or obstruct implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Expose sensitive receptors to pollutant concentration?
- Create objectionable odors affecting a substantial number of people?

***ASSESSMENT OF AIR QUALITY***

**DEFINITIONS OF AIR QUALITY**

Air quality, as monitored by the San Joaquin Valley Air Pollution Control District (APCD), describes the ambient air, the air which people breathe outside of buildings as they go about their daily activities. Poor air quality, when air pollutants in the ambient air exceed established thresholds, is hazardous to health, diminishes the production and quality of many agricultural crops, reduces visibility, degrades soils materials, and damages native vegetation. The air pollutants of most concern in the APCD are ozone and particulate matter. Toxic air pollutants, odors, carbon monoxide, and dust are also pollutants of concern, but on a more limited and localized basis than ozone and particulate matter.

**DEFINITION OF TERMS**

*Carbon Monoxide (CO)* A colorless, odorless, toxic gas produced by incomplete combustion of carbon-containing substances.

*Nitrogen Oxides (NO<sub>x</sub>)* Although there are a number of NO<sub>x</sub> compounds, only two are important in air pollution. These are: nitric oxide (NO), a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or pressure; and nitrogen dioxide (NO<sub>2</sub>), a reddish-brown irritating gas formed by the combination of nitric oxide and oxygen. NO<sub>x</sub> plays a critical role in the photochemical reaction that produces ozone.

*Ozone (O<sub>3</sub>)* The product of a series of complex chemical reactions and transformations between ROC and NO<sub>x</sub> in the presence of sunlight. Since ozone is formed in the atmosphere and not directly emitted by any source, it is known as a secondary pollutant. O<sub>3</sub> is the air pollutant of primary concern.

*Particulate Matter (PM<sub>10</sub>)* Fine solids or liquids in the atmosphere made up of dust, soot, aerosols, fumes and mists. Federal and state standards exist for particulate matter less than or equal to 10 microns in size (PM<sub>10</sub>).

*Reactive Organic Compounds (ROC)* A highly reactive group of hydrocarbons which play a critical role in the photochemical reactions that produce ozone.

*Sulfur Dioxide (SO<sub>2</sub>)* A colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. During humid conditions, SO<sub>2</sub> may, through a series of chemical reactions with other materials, produce sulfate particulates.

*Toxic Air Pollutants* Substances in the air which are known or suspected to cause cancer, genetic mutations, birth defects, or other serious illness in people.

#### THRESHOLD CRITERIA

##### 1. Local Air quality

***Carbon Monoxide:*** A CO screening analysis should be conducted for any project exceeding 25 pounds per day of either ROC or NO<sub>x</sub> which may significantly impact roadway intersections which are currently operating at, or which are expected to operate at, Levels of Service E or F, or at any project-impacted roadway intersection at which there may be a CO hotspot.

#### METHODS

The screening analysis should be derived from CALINE3 and CALINE4, computer models developed by the California Department of Air Resources Control Board, and used to predict CO, NO<sub>2</sub>, particulate or other inert gaseous pollutant concentrations near roadways.

It is suggested that the full CALINE3 or CALINE4 model be used instead of the screening analysis for any projects or plans that will generate 10,000 or more vehicle trips per day. It is also advised that the complete CALINE3 or CALINE4 model be used for smaller projects if the simplified screening runs indicate that a CO standard may be exceeded.

***Toxic Air Pollutants:*** Any project that may release toxic or hazardous air pollutants to the atmosphere in amounts which may be injurious to nearby populations should be analyzed for potential toxic air pollutant impacts.

***Particulate Matter/Dust:*** Any project which may create, either during construction or operation, excessive amounts of fugitive dust or other particulate matter, should be analyzed for potential adverse impacts, including nuisances.

#### Regional Air Quality

a. Any general development project in the city capable of emissions of:

***Ozone Precursor Emissions:***

Reactive Organic Compounds (ROG): 10 tons/year

- Nitrogen Oxides (NO<sub>x</sub>): 10 tons/year

***PM<sub>10</sub> Emissions***

Compliance with SJVAPCD Regulation VIII reduces to less than significant.



## **ASSESSMENT OF ODOR**

### **DEFINITIONS OF ISSUE**

An odor is the property of a substance that affects the sense of smell. Not all odors are objectionable to all receptors. A particular odor may be so strong that it can be detected by the average person, but it may not be considered a significant odor impact.

### **DEFINITIONS OF ODOR**

**Odors:** Any project which may create objectionable odors that may impact sensitive receptors located within a one-mile radius of the project site or emission source should be analyzed for potential odor impacts.

### **THRESHOLD CRITERIA**

A significant environmental impact may exist when the air quality analysis concludes that emissions from a particular plan or proposal exceeds the following standards:

Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing Plant	1 mile
Fiberglass Manufacturing	1 mile
Paint/Coating Operations	1 mile
Rendering Plant	1 mile
Sanitary Landfills	1 mile
Food Processing Facility	1/2 mile
Wastewater Treatment Facilities	1/2 mile
Feed Lot/Dairy	1/2 mile
Poultry Farm	1/2 mile
Transfer Station	1/4 mile
Composting Facility	1/2 mile

Note: Distances are for screening purposes only. Odors may or may not be a problem for these facility types. Distances can vary significantly based on prevailing wind conditions, technology employed in the activity and the operating controls employed by the facility operator. If a facility or land use has the potential to create objectionable odors, it must submit a detailed air quality analysis listing all potential emissions and their concentrations.

### ***B. Potential Significant Impacts:***

Development activities associated with implementation of the general plan update are expected to encourage new job-producing tourism, residential, commercial, and industrial development in the city of Waterford. Consequently, additional vehicle trip generation and resultant mobile source emissions of air pollutants may occur. New industries accommodated in the city of Waterford may produce air or liquid waste and/or emissions with unpleasant odors.

*Air Quality Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan implementation, the following aspects of a potential air quality impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Conflict with or obstruct implementation of the applicable air quality plan?*

The city's general plan does not conflict with, or obstruct, the implementation of the regional air quality plan. The general plan policies and goals have been formulated in a manner to support implementation of the regional air quality plan where feasible and practical. None of the proposed goals and policies of the plan conflict with adopted air quality plan goals and policies.

- *Expose sensitive receptors to pollutant concentration?*

The project is expected to generate automobile traffic that will affect air quality along adjacent streets and highways. Adjacent to such roadways, the measurable pollutant that is most significant is carbon monoxide (CO). Federal regulations require that new roadway improvement projects, which may be implemented using federal funds, must not exceed state or federal standard CO concentrations of 20 parts per million (PPM) for 1 hour (the federal maximum standard of 35 PPM is far less stringent than the state's maximum standard of 20 PPM).

Plan policies and standards will not result in the exposure of sensitive receptors to pollutant concentrations. The most likely direct impact in the categorical area would be the potential for CO concentrations around congested intersections. As a result of traffic and transportation planning, intersection congestion potential is not expected to occur in a manner that would result in the creation of CO concentrations.

*Air Quality Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, the following aspects of a potential air quality impact may result in a significant adverse environmental impact due to project implementation:

- *Create objectionable odors affecting a substantial number of people?*

Land uses such as dairy farms, poultry farms, and wastewater treatment facilities can generate unacceptable odors around residential areas. Plan policies and standards will not result in the creation of objectionable odors. city zoning and development standards provide guidance during the project review phase of a project to minimize the risk of objectionable odor impacting a number of people.

- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

General plan policies and standards will not directly result in the violation of any air quality standard but will contribute to an existing air quality violation with respect to ozone and PM<sub>10</sub> in the central San Joaquin Valley. However, the plan provides a long-term guide for growth and development in the city and, therefore, will have an indirect impact on air quality violations. Projects undertaken in conformance with the general plan policies and standards will be evaluated on their own merits with respect to air quality conformity and will be required to comply with all applicable standards and regulations employed by the air quality district for the purposes of reducing ozone and PM<sub>10</sub> emissions.

- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

The San Joaquin Valley is designated as non-attainment under applicable federal and state standards for ozone and PM<sub>10</sub> emissions. Long-term growth throughout the Valley, including planned growth in the city of Waterford, will contribute to a cumulative net increase in this air pollution.

***C. Proposed General Plan Goals & Policies:***

The Waterford Vision 2025 General Plan Update contains many goals and policies that address concerns over air quality. Overall, proposed general plan policies with respect to Urban Expansion, Land Use, Urban Design, and Transportation/Circulation focus on creating a sustainable community that encourages alternative non-vehicular modes of transportation and reduces air pollution. The Sustainable Development Chapter contains specific goals and policies that address reduction of air quality impacts of urban growth and expansion in the city of Waterford.

- **Goal Area-                    *Sustainable Development Goal Area SD-1: Air Quality***
  - 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.

**Other Relevant Plans, Policies, and Regulations Regulatory Framework**

The county is located in the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). The SJVUAPCD has jurisdiction over air quality issues throughout the eight-county SJVAB. The district administers air quality regulations developed at the federal, state, and local levels. Air quality regulations applicable to the Waterford General Plan are described below. Recently the district adopted Rule 9510, the Indirect Source Review (ISR) rule for establishing and collecting fees to mitigate indirect source air impacts. The rule also provides an economic incentive for new development to apply mitigation measures to reduce air quality pollutants. The rule is summarized below:

***Rule 9510 Indirect Source Review (ISR)***

Adopted by the SJVUAPCD on December 15, 2005.

***Purpose***

The purposes of this rule are to:

- Fulfill the district's emission reduction commitments in the PM<sub>10</sub> and Ozone Attainment Plans.
- Achieve emission reductions from the construction and use of development projects through design features and on-site measures.
- Provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures.

***Applicability***

This rule shall apply to any applicant that seeks to gain a final discretionary approval for a development project, or any portion thereof, which upon full build-out will include any one of the following:

- 50 residential units;
- 2,000 square feet of commercial space;
- 25,000 square feet of light industrial space;
- 100,000 square feet of heavy industrial space;
- 20,000 square feet of medical office space;
- 39,000 square feet of general office space;
- 10,000 square feet of government space;
- 20,000 square feet of recreational space; or
- 9,000 square feet of space not identified above.

This rule shall apply to any transportation or transit project where construction exhaust emissions equal or exceed two (2.0) tons of NO<sub>x</sub> or two (2.0) tons of PM<sub>10</sub>.

***Exemptions***

Transportation projects shall be exempt from the requirements in Sections 6.2 and transit projects shall be exempt from the requirements in Sections 6.2 and 7.1.2

Development projects that have a mitigated baseline below two (2.0) tons per year of NO<sub>x</sub> and two (2.0) tons per year of PM<sub>10</sub> shall be exempt from the requirements in Sections 6.0 and 7.0.

The following shall be exempt from the requirements of this rule:

- Reconstruction of any development project that is damaged or destroyed and is rebuilt to essentially the same use and intensity.
- Transportation Projects that consist solely of:
- A modification of existing roads subject to District Rule 8061 that is not intended to increase single occupancy vehicle capacity, or,
- Transportation control measures included in a District air quality attainment plan.
- A development project on a facility whose primary functions are subject to Rule 2201 (New and Modified Stationary Source Review Rule) or Rule 2010 (Permits Required), including but not limited to the following industries:
- Aggregate Mining or Processing;
- Almond Hulling, Canning Operations, Food Manufacturing, Grain Processing and Storage, Vegetable Oil Manufacturing, and Wineries;
- Animal Food Manufacturing;
- Confined Animal Facilities;
- Coatings and Graphic Arts;
- Cotton Ginning Facilities;
- Energy Production Plants;
- Ethanol Manufacturing;
- Gas Processing and Production, Oil Exploration, Production, Processing, and Refining;
- Glass Plants;
- Solid Waste Landfills;
- Petroleum Product Transportation and Marketing Facilities.

***Fee Schedules***

The costs of NO<sub>x</sub> reductions are as follows:

<b>Year</b>	<b>Cost of NOX Reductions (\$/ton)</b>
2006	\$4,650.00
2007	\$7,100.00
2008 and beyond	\$9,350.00

The costs of PM<sub>10</sub> reductions are as follows:

<b>Year</b>	<b>Cost of PM<sub>10</sub> Reductions (\$/ton)</b>
2006	\$2,907.00
2007	\$5,594.00
2008 and beyond	\$9,011.00

### **Federal Requirements**

The primary legislation that governs federal air quality regulations is the Clean Air Act Amendments of 1990. The act and amendments delegate primary responsibility for clean air to the Environmental Protection Agency (EPA). EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies.

EPA has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants (table 3.4.1). Criteria pollutants include CO, NO<sub>2</sub>, SO<sub>2</sub>, ozone, PM<sub>10</sub>, and lead.

If an area does not meet the federal NAAQS shown in table 11-1, federal clean air planning requirements specify that states develop and adopt State Implementation Plans (SIPs), which are air quality plans showing how air quality standards will be attained. In California, EPA has delegated authority to prepare SIPs to the California Air Resources Board (ARB), which, in turn, has delegated that authority to individual air districts.

The county is located in a federal non-attainment area for ozone and PM<sub>10</sub>. The SJVUAPCD has adopted a SIP that addresses PM<sub>10</sub>, ozone, and the ozone precursors NO<sub>x</sub> and ROG. The SIP specifies that the regional air quality standards for ozone and PM<sub>10</sub> can be met through additional source controls and through trip-reduction strategies. The SIP also establishes “emission budgets” for transportation and stationary sources. The budgets, developed through air quality modeling, reveal how much air pollution can occur in an area without causing violations of the NAAQS.

### **State Requirements**

ARB, which is part of the California Environmental Protection Agency (Cal-EPA), develops air quality regulations at the state level. The state regulations mirror federal regulations by establishing industry-specific pollution controls for criteria, toxic, and nuisance pollutants. California also requires areas to develop plans and strategies for attaining state ambient air quality standards as set forth in the California Clean Air Act of 1988 (table 3.4.1). In addition to developing regulations, ARB develops motor vehicle emission standards for California vehicles.

### **Local Requirements**

At the local level, the SJVUAPCD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. Air quality is also managed through land use and development planning practices.

These practices are implemented in the city of Waterford through the general development permit review and approval process.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on air quality in the city. The plan, however, will re-affirm policy standards by which new growth and development will be evaluated with respect to impacts on local and regional air quality.

***E. Long-Term Impacts:***

Long term impact of growth and development are expected to result in increased traffic and the development of new sources of air pollution. This increase in emissions will contribute to the regional air quality problems.

***F. Cumulative Impacts:***

Development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic congestion region-wide. This impact will contribute to the regional air quality problems. Emissions from other sources will also contribute to the regional air pollution.

***G. Secondary Impacts:***

The effects of increased levels of air pollution are discussed above. As a result of the region being in non-conformance with state and national air quality standards, both state and federal enforcement penalties could impose hardships on the region's population and economic development.

***3.4.3 Mitigation Measures***

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Policy guidance incorporated into the general plan minimizes potential impacts to regional air quality.

Mitigation of increased impacts on air quality within Waterford's planning area is typically addressed through the implementation of the development review process and implementation of the SJVUAPCD's Indirect Source Fee Program (Rule 9551). The city will participate in the district's impact fee program and require development mitigation as may be required by the district.

With the implementation of the air district's impact fee programs, rules, standards and regulations, no mitigation measures are feasible or proposed. With the implementation of these measures, however, the cumulative impacts of growth and development in the city and the region will result in a significant and unmitigable impact.

***3.4.4 Level of Significance After Mitigation***

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It can be expected that the growth resulting from the implementation of the Waterford General Plan will contribute to the significant regional air quality problem. Beyond the policies of the general plan, there is no practical mitigation that can be imposed that

would mitigate the adverse impacts on air quality in the Waterford urban area or the region to a less than significant level.

As a result of the analysis of potential project impacts on air quality, it can be concluded that the project will contribute to the cumulative deterioration of air quality as an overall consequence of regional growth and this is considered a “significant” adverse impact under CEQA.



## ***Section 3.5***

### ***Biological Resources***

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This environmental issue focuses on the impacts of a project on biological resources such as sensitive plant or animal species or its habitat, or riparian habitat or its interference with the normal movements of wildlife species in the vicinity of a project. Additional concerns focus on consistency of a project with adopted plans, policies and regulations regarding wildlife, including a habitat conservation plan, local wildlife preservation plans or policies, or wetlands.

The vast majority of the undeveloped area within the Waterford Urban Expansion Area is cultivated with irrigated pasture, row crops or orchards. As a result, little undisturbed natural habitat remains in the area except along the Dry Creek and Tuolumne River corridors. The major plant community and wildlife habitat types that occur in the area include riparian corridors, non-native grassland, and irrigated pasture. Additionally, vernal pools and seasonal wetland habitats occur within the non-native grassland habitats. Wildlife resources are not only a concern because of how state and federal environmental laws affect planning for growth and development, they also contribute to the perceived “quality of life” of the city.

#### ***3.5.1 Approach & Purpose***

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The following analysis is based on previous literature prepared for the area surrounding the city of Waterford. Some conclusions are based on field studies for other projects in the area. The purpose of this methodological approach is to:

- Characterize biological communities and their associated wildlife habitat uses,
- Document common plant and wildlife species that were identifiable at the time of previous surveys,
- Identify areas that may contain potential habitat for special-status species,
- Identify areas that may contain potential waters of the United States, including wetlands, that would be subject to federal regulations,
- Identify area-wide biological resource concerns that may result in limiting efforts to implement the Waterford Vision 2025 General Plan Update.
- Identify issues and areas of sensitivity to guide future site specific biological studies that may be required as a result of implementation of the Waterford Vision 2025 General Plan Update.

This analysis relied on existing resource information relating to the project area. Pertinent sources reviewed were:

- The California Natural Diversity Database (CNDDB) records,
- Draft EIR for the Modesto Surface Water Treatment Plant (Modesto Irrigation District 1989) and,
- Draft EIRMRWTP Phase Two Expansion Project EIR (Modesto Irrigation District 2004).

These data sources were used to develop lists of special-status species and other sensitive biological resources that could be present in the Waterford Vision 2025 General Plan Update area. Species were included in these lists if they were known to occur in the project region and if their habitats could be located in the project vicinity.

### ***3.5 2 Environmental Setting***

#### ***Past and Current Biological Context:***

The project area is located in the San Joaquin Valley sub-region of the Great Central Valley geographic region. The city of Waterford is located in the eastern portion of Stanislaus County, approximately 13 miles east of Modesto and 11 miles northeast of Turlock. The existing city is bordered on the south by the Tuolumne River, on the north by the Modesto Irrigation District (MID) Modesto Main Canal, on the west by Eucalyptus Avenue, and on the east by a parcel boundary south of MID Lateral Connection No. 8.

The study area for this Assessment Report includes the present city and encompasses the proposed annexation area, which extends from the city's existing boundary to the north, east and west. This area forms an arc around the existing city, and is bounded by the Tuolumne River on the south and Dry Creek on the north.

The project area ranges from relatively flat to the west and gently rolling as it rises to the east and ranges in elevation from 160 to 200 feet above sea level.

The majority of the project area consists of agricultural lands that support non-native annual grasses and forbes when they are not being cultivated for annual crops, orchard or irrigated pasture. The biological communities and special-status species located in the project area are described below.

#### ***Biological Communities***

Eight biological communities were documented in the project area; non-native annual grassland, artificially-created seasonal wetland, drainage, mixed riparian woodland, agricultural field, orchard and vineyard, irrigated pasture, and developed. Dry Creek and the Tuolumne River and associated riparian communities are also described in this section because these resources may be affected by the proposed project.

#### **Non-native Annual Grassland**

Non-native annual grassland is the dominant community type in the northeastern portion of the project planning area. Non-native annual grasslands consist of dense to sparse covers of annual grasses that often grow with a variety of showy annual forbs (both native and non-native). Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring and plants are typically senescent through the summer and fall dry season. Common plant species are wild oats, bromes, fescue, barbed goat-grass, Italian ryegrass, mustards, filarees, yellow star-thistle, rancher's fireweed, and chickweed.

Grasslands support insects, amphibians, reptiles, and small birds and animals that are preyed on by other wildlife, including red-tailed hawk, red-shouldered hawk, American kestrels, great-horned owl, California voles, deer mice, California ground squirrels, and coyotes. Grasslands near open water and riparian habitats are used by the most wildlife species because they provide places for resting, breeding and escape cover. Much of the non-native grassland in the project area is heavily disturbed due to roadside activities, which reduce the quality of the habitat for wildlife and decrease the number of species expected to occur there.

### **Agricultural Field**

Agricultural fields and their adjacent unimproved roads are habitat for a wide variety of weedy plant species. Most of these species are non-native, and potential for the occurrence of special-status plant species is very low. Common weedy plants occurring in the agricultural fields and along the unimproved roads were ripgut brome, red-root amaranth, and common knotweed. During periods when the field is fallow, non-native species of annual grasses and forbes become established

In most cases, agricultural crops are considered marginal habitat for wildlife species because the fields are frequently disturbed throughout the year and lack native vegetation. Representative wild life of agricultural fields include western kingbird, yellow-billed magpie, western meadowlark, Brewer's blackbird, foraging raptors, house finch, coyote, and various rodents. Certain agricultural crops, including alfalfa, are considered suitable low-quality foraging habitat for some special-status species, including Swainson's hawk.

### **Orchard**

Orchards, mostly almond and walnut, are found on much of the land immediately adjacent to the city. The orchards include mature trees that provide nearly complete canopy cover and minimal undergrowth is present between the rows of trees. Non-native annual grassland form the under-story of the orchard habitat.

Representative wildlife of orchard lands in the central Valley includes yellow-billed magpie, American crow, western scrub jay and the California ground squirrel.

### **Irrigated Pasture**

Irrigated pasture is typically grazed intensively and is low in species diversity and has low potential for the occurrence of special-status species. Common plant species of pasture includes, primarily, annual and perennial grasses and forbes such as tall fescue, Italian ryegrass, soft chess, and curly dock.

Irrigated pasture provides foraging areas and cover for wildlife species. Typical amphibians and reptiles residing in irrigated pasture include garter snakes, gopher snakes, Pacific tree-frogs, western fence lizards. Bird species include great blue Heron, white egret, western kingbird, red-winged blackbird, savannah sparrow, western meadowlark, white-crowned sparrow, and brown-headed cowbird. Birds known to breed in irrigated pasture include red-winged blackbird and western meadowlark. Mammals that forage in the habitat area include deer mice, Botta's pocket gopher, California ground squirrel,

striped skunk, and coyote. Small birds and mammals in irrigated pasture are prey for coyotes, great horned owls, American kestrels, and red-tailed hawks.

The irrigated pasture could provide foraging habitat for several special-status bird species, including Aleutian Canada geese, tri-colored blackbirds, white-faced ibis, and Swainson's hawks.

### **Developed Areas**

Most of the project area components extend through developed areas and do not support sensitive biological resources. These areas include roads, residential neighborhoods, commercial and industrial development and public facilities. They provide minimal habitat values for local wildlife species.

### **Natural Waterways and Canals**

Dry Creek and the Tuolumne River, and natural drainage channels discharging into these waterways, along with several irrigation canals, occur in the project area. Dry Creek and the Tuolumne River are perennial drainage corridors and contain mixed riparian woodland vegetation along their banks. The canal system is artificially created and constructed of dirt and, some cases, are concrete-lined to reduce seepage. These canals are typically groomed to reduce vegetation and, as a result, do not contain any wetland or riparian value.

The Tuolumne River is 52 miles long between La Grange Dam and its confluence with the San Joaquin River. Downstream of Modesto, the river is confined between levees and agricultural activities. Upstream, the river is affected by urban development, gravel mining and agriculture.

Both Dry Creek and the Tuolumne River provide important habitat for a variety of wildlife. Vegetation growing along the edges of the water course provides nesting habitat for several bird species and foraging and refuge habitat for amphibians, reptiles and mammals occupying the open water and adjacent grassland habitats.

Birds such as herons and belted kingfishers forage in these communities, primarily along the water's edge. Many species of insectivorous birds, including white-throated swift, barn swallow, cliff swallow, black Phoebe, and ash-throated flycatcher, catch their prey over open water.

### **Riparian Woodland**

As stated above, riparian woodland occurs along the banks of Dry Creek and the Tuolumne River. This woodland area contains a mix of mature trees (valley oak, Fremont's cottonwood, and willows) and shrubs. Elderberry shrubs frequently occur just outside this riparian corridor.

Despite local disturbances from urbanization in the project area, the riparian forest provides an important wildlife resource. Riparian trees and shrubs in the study area provide nesting habitat for numerous bird species that forage in the multi-layered

vegetation of the riparian forest and in adjacent non-naïve annual grassland areas and open water habitats. Birds typically found in these riparian forests include red-tailed hawk, red-shouldered hawk, American robin and acorn woodpeckers.

### **Vernal Pools & Seasonal Wetlands**

Seasonal wetlands are wetlands that are temporarily saturated or inundated during winter and spring. Seasonal wetlands occur in depressions in the landscape and briefly retain water, or become saturated due to the presence of subsurface water. Seasonal wetland vegetation in the city's eastern growth area is similar to that found in vernal pools, and may include sedges (*carex sp.*), spike-rush (*eleocharis spp.*), and rushes (*juncus spp.*).

Seasonal wetlands have been identified in the northeast portion of the urban expansion area but are not located within the Primary Sphere of Influence proposed in the City of Waterford Vision 2025 General Plan Update. Vernal pool species occurring in the area include popcorn flower (*plagiobothrys sp.*), goldfields (*lasthenia glaberrima*), downingia (*downingia pulchella*), and button-celery (*eryngium vaseyi*). Other plant species that could occur in vernal pool and seasonal wetland habitats include flowering quillwort (*lilaea scilloides*), tidy tips (*layia platyglossa*), and water star-wort (*callitriche verna*).

### **Special-Status Plants**

Based on a review of existing information, species list obtained from the USFWS, and species distribution and habitat requirements data, there is a low potential for special-status plants in the city's proposed Sphere of Influence. Most of the project area is developed or heavily disturbed and does not support suitable habitat conditions for special-status plants known to occur in the region.

### **Special-Status Wildlife**

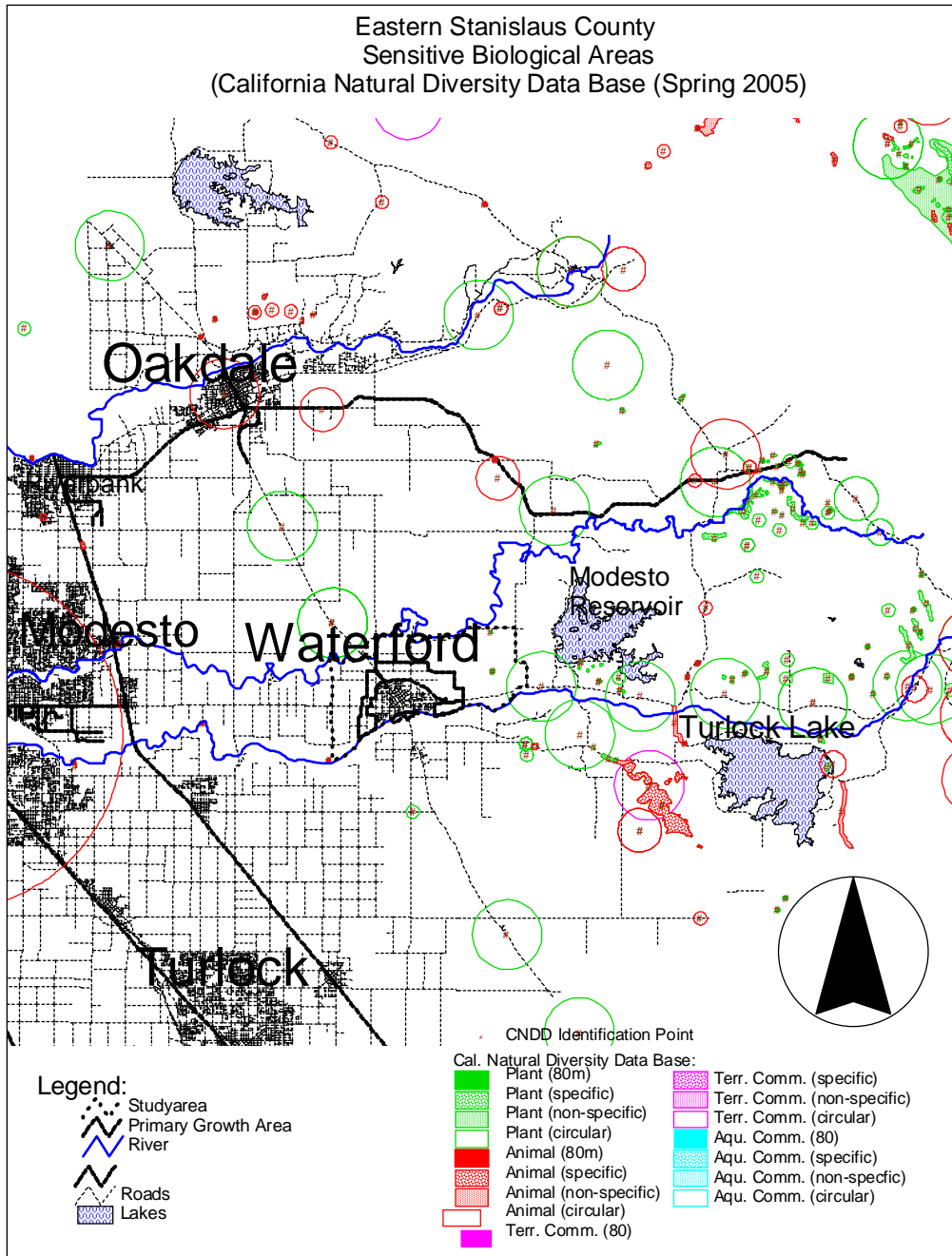
Based on a review of existing information, species lists and species distribution and habitat requirements, 19 special-status wildlife species were determined to have potential to occur in the project region. Special-status wildlife species are listed in Table 3.4.4. As part of any future survey, the most likely species of concern that will be encountered will be the Valley Elderberry Longhorn Beetle, Special-Status Raptors and the Western Pond Turtle and their respective habitats.

**Valley Elderberry Longhorn Beetle.** Elderberry shrubs are found along the banks of the Tuolumne River and Dry Creek. These shrubs provide suitable habitat for the VELB.

**Special-Status Raptors.** Annual grasslands and agricultural habitats to the north and east of the city's proposed Sphere of Influence provide suitable habitat for four special-status birds including Swainson's hawk, white-tailed kite, northern harrier, and loggerhead shrikes. The riparian woodland habitat along Dry Creek and the Tuolumne River provides suitable nesting habitat for Swainson's hawk.

**Western Pond Turtle.** Dry Creek provides suitable aquatic habitat for the western pond turtle.

**Exhibit 3.4.1  
Sensitive Species Map**



## **Fish Species**

### ***Fisheries Resources***

In general, resident fish communities of the Sacramento and San Joaquin Valley floor are dominated by introduced warm-water species. Based on their known geographic distribution and general habitat requirements, resident warm-water species such as sunfish, catfish, carp, and mosquito-fish are likely to occur in the project area.

### **Chinook Salmon**

La Grange Dam (built in 1893) is the upstream barrier to Chinook salmon (*oncorhynchus tshawytscha*) migration. Spawning now takes place in the 25-mile reach below the dam, and juvenile rearing takes place throughout the lower Tuolumne River. The quantity of habitat for salmon in the Tuolumne River has been degraded over the years by many factors.

In 1995, a settlement agreement was signed by federal and state agencies, local irrigation districts, the city and county of San Francisco, and local environmental groups as part of an amendment to Article 37 of the Federal Energy Regulatory Commission (FERC) license for the operation of the New Don Pedro Dam Project. One of the results of this agreement is increased flow releases from New Don Pedro Dam as part of a strategy for recovery of Tuolumne River Chinook salmon.

Currently, the entire Chinook salmon population in the San Joaquin River is made up of fall-run Chinook that spawn between October and December. Small numbers of spawners have been observed in the Tuolumne River as late as February. Recent spawning escapement of Chinook salmon in the Merced, Tuolumne and Stanislaus rivers is highly variable. Higher returns are strongly correlated with above normal and wet water year types. Similarly, lower spawning escapements are correlated with normal, dry, and critically dry water years. Very low spawning escapements since 1990 are related to drought conditions between 1987 and 1992.

The decline of Chinook salmon populations has been attributed to:

- isolation from historical spawning areas,
- loss of habitat,
- impaired conditions for smolt emigration, including decreasing flows and increased water temperatures,
- legal and illegal harvest,
- introgression with hatchery stocks,
- presence of pesticides and agricultural chemicals, and
- entrainment of smolts in the State Water Project/Central Valley Project (SWP/CVP) water export system.

All the major rivers of the San Joaquin basin have dams at fairly low elevations which are impassable to salmon and prevent salmon migration into the tributary streams of the Sierra Nevada Mountains. In addition to physically blocking access to upstream habitat, the many dams and reservoirs in the basin have altered natural hydraulic regimes on the

rivers resulting in changes in river morphology, prevention of gravel recruitment, sedimentation of fines into spawning gravels, and changes to season patterns of flow and water temperatures. Other water quality problems that are potentially of concern for salmon include high salinities and low dissolved oxygen of the San Joaquin River and the Delta.

### **Steelhead**

Steelhead is the anadromous form of *O. mykiss* that is listed by NOAA Fisheries as threatened, but a recent court decision forced the National Oceanic and Atmospheric Administration (NOAA) Fisheries to propose a re-listing of both anadromous and resident populations of *O. mykiss* as threatened. The species can be either anadromous or resident in freshwater streams or rivers. Individuals that do emigrate to the sea are called steelhead and individuals that remain resident in freshwater are termed rainbow trout. Both adult steelhead and rainbow trout typically survive after spawning, though it is rare that adults will spawn more than twice.

Steelhead have a life history similar to salmon. The primary difference is that juvenile steelhead remain in the tributaries for at least one year before smolting. The majority of the spawning for winter-run steelhead generally occurs in December. Steelhead eggs are deposited in gravels and hatch in 30-60 days. Fry generally emerge during April and May, and juvenile steelhead generally spend 1-3 years in freshwater before emigrating to the ocean, where they generally spend 2-4 years before returning to freshwater to spawn. Adults that survive spawning return to the ocean from April through June. Juveniles usually emigrate from November through May. They require silt-free streams with rocky/gravel substrates for spawning with cool, fast-moving water near riffles to keep eggs oxygenated.

Historically, winter-run steelhead are native to the Sacramento and San Joaquin river basins and are the only race found in the central Valley. In the San Joaquin River basin, steelhead populations have been reduced to remnant levels. Past monitoring efforts have been inconclusive in determining the presence or absence of steelhead population in the Tuolumne River. Resident rainbow trout can be found in the San Joaquin River, its tributaries, the Delta, and San Joaquin basin reservoirs, but in numbers that are greatly reduced from their historical abundance in those areas.

### **Regulatory Framework**

#### ***Federal Regulations***

***Endangered Species Act*** The Endangered Species Act (ESA) of 1973, and subsequent amendments, provide for the conservation of endangered and threatened species and the ecosystems on which they depend. The United States Fish and Wildlife Service (USFWS), with jurisdiction over plants, wildlife and resident fish, and the NOAA Fisheries Service with jurisdiction over anadromous fish and marine fish and mammals, oversee the ESA. Section 7 of the ESA mandates that all federal agencies consult with USFWS and NOAA Fisheries if they determine that a proposed project may affect a listed species or its habitat. The purpose of consultation with USFWS and NOAA Fisheries is to ensure that the federal agencies' actions do not jeopardize the continued



existence of a listed species or destroy or adversely modify critical habitat for listed species.

Section 7 requirements do not apply to non-federal actions. At present, no federal permits are expected to be required for the general plan update though it may be possible that some actions taken during the course of development may trigger federal review and/or permitting. Therefore, the project is not subject to Section 7 of ESA, but could be subject to Section 10 of ESA (see below), if there are federally listed species that could be affected by a project proposed in a manner that is consistent with the plan.

Section 9 of ESA prohibits the “take” of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species’ recovery. “Take” is defined as the action of, or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing.

Under Section 9 of ESA, the “take” prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and reduction to possession, or malicious damage or destruction of, any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9.

Section 10 of ESA requires the issuance of an incidental take permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e. take) any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan, incidental to implementation of the project, which would offset the take of individuals that may occur by providing the overall preservation of the affected species through specific mitigation measures.

***Executive Order 13186: Migratory Bird Treaty Act*** Executive Order (EO) 13186 directs each federal agency taking actions that would have or would likely have a negative impact on migratory bird populations to work with the USFWS to develop a memorandum of Understanding (MOU) to promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities.

- Avoid and minimize, to the extent practical, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance habitat of migratory birds, as practicable.
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA). It does not constitute any legal authorization to take migratory birds. Take, under the MBTA, is defined as the action of, or an attempt to, pursue, hunt, shoot, capture, collect, or kill (Title 50, Code of Federal Regulations[CFR], Section 10.12). The definition includes “intentional” take (take that is the purpose of the activity in question) and “unintentional” take (take that results from, but is not the purpose of, the activity in question).

***Clean Water Act: Section 401 and Section 404*** Clean Water Act (CWA) Section 401 requires that applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a CWA 404-permit) must also comply with CWA Section 401.

After the CEQA process is complete, the project sponsor would apply for water quality certification from the Regional Water Quality Control Board (RWQCB) to comply with the CWA Section 401 requirements. The Army Corps of Engineers (ACOE) would require compliance with Section 401 as a prerequisite to authorization of the project under Section 404.

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the placement of fill into “Waters of the United States” under CWA Section 404. “Waters of the United States” include lakes, rivers, streams and their tributaries, and wetlands. Wetlands are defined for regulatory purposes as areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3).

Project proponents must obtain a permit from the Corps for all discharges of fill material into waters of the United States, including wetlands, before proceeding with a proposed project.

### ***State Regulations***

***California Endangered Species Act*** The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) establishes state policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that would affect a species that is federally and state-listed, compliance with ESA satisfies CESA if the California Department of Fish and Game (DFG) determines that the federal incidental take authorization is consistent with CESA under California Fish and Game Code Section

2080.1. For projects that would result in take or a species that is only state-listed, the project proponent must apply for a take permit under Section 2081(b).

***California Fish and Game Code Sections 3503 and 3503.5*** Under these sections of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or to take, possess, or destroy any birds of prey or their nest or eggs.

***Porter-Cologne Water Quality Control Act*** The Porter-Cologne Water Quality Control Act authorizes the State Water Resources Control Board to regulate state water quality and protect beneficial uses. The Act is fully discussed in Chapter 3.9, *Hydrology & Water Quality*.

### ***3.5.3 Environmental Impacts***

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The conversion of the non-urban farmland within the planning area to urban uses will result in the displacement of animal species characteristic of the farmland in the region by reducing or eliminating wildlife habitat. If additional residential development occurs, domestic/household pets introduced into the area could contribute to the reduction of local wildlife.

#### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Biological Resources as follows:

#### ***Would the project:***

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance?

**Table 3.5.1 Special-Status Wildlife Species identified as having the Potential of Occurring in the Project Area**

Common and Scientific Name	Status Federal/State	California Distribution	Habitats	Reason for Decline	Occurrence in Project Area
Critical habitat, vernal pool invertebrates	X/-	A total of approximately 1,184,513 acres of lands have been designated critical habitat. There are two units in Stanislaus County; Unit 21 for vernal pool fairy shrimp and Unit 13 for vernal pool tadpole shrimp	Unit 13-hardpan pools on soils of alluvial fans and terraces. Unit 21 – large relatively intact, and contiguous vernal pool complexes ranging from the valley floor to the low-elevation foothills.	Habitat loss of agriculture and development.	Unit 21 is approximately two miles northeast of the project site.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/-	Central Valley, central and south Coast Ranges from Tehama county to Santa Barbara county; isolated populations also in Riverside county.	Common in vernal pools; also found in sandstone rock outcrop pools.	Habitat loss to agricultural and urban development.	Within 3-10 miles of the project area.
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	SC/-		Common in vernal pools; also found in sandstone rock outcrop pools.	Habitat loss to agricultural and urban development.	No reported occurrences in the project area.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E/-	Shasta county south to Merced county.	Vernal pools and ephemeral stock ponds	Habitat loss to agricultural and urban development.	Reported occurrences within 3-10 miles of the project area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/-	Streamside habitats below 3,000 feet through the central Valley of California.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are host planys.	Loss and fragmentation of riparian habitats.	Reported occurrences along the Tuolumne River. Elderberry shrubs observed along Tuolumne River and Dry Creek corridors.
California tiger salamander <i>Ambystoma californiense</i> (= <i>A. tigrinum</i> c.)	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte county south to Santa Barbara county.	Small ponds, lakes, or vernal pools in grasslands and oak woodland for larvae; rodent burrows, rock crevices, or fallen logs for cover from adults and for	Loss of grasslands, vernal pools, and other wetlands to agricultural development and urbanization.	Reported occurrences from 3-10 miles of the project area; No suitable habitat in the project area.

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			summer dormancy.		
Western spadefoot <i>Scaphiopus hammondi</i>	-/SSC	Sierra Nevada foothills, central Valley, Coast Ranges, coastal counties in southern California.	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Alteration of stream habitats by urbanization and hydroelectric projects, loss of seasonal wetlands and vernal pools.	Observed in Hickman vernal pool, three to five miles south of the Modesto Reservoir. No suitable habitat in the project area.
Western pond turtle <i>Clemmys marmorata</i>	-/SSC	In California, range extends from Oregon border of Del Norte and Siskiyou counties south along coast to San Francisco Bay, inland through Sacramento Valley and the western slope of the Sierra Nevada south to the southern California coast inland to the Mojave and Sonora Deserts.	Woodlands, grasslands, and open forests; occupies ponds marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation.	Loss and alteration of aquatic and wetland habitats, habitat fragmentation.	Occurrences on the north side of the Stanislaus River near Oakdale and Dry Creek.
California horned lizard <i>Phrynosoma coronatum frontale</i>	-/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma county; below 4,000 feet in northern California.	Grasslands, brushlands, woodlands, and open coniferous forest with sandy loose soil; requires abundant ant colonies for foraging.	Loss of habitat from agriculture and urban development, habitat alteration from overgrazing and rodent eradication.	No reported occurrences in the project area. No suitable habitat in the project area.
Giant garter snake <i>Thamnophis gigas</i>	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno.	Sloughs, canals, and other small waterways where there is prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	Loss of habitat from agriculture and urban development, habitat fragmentation.	No reported occurrences in the project area. No suitable habitat in the project area.
White-tailed kite <i>Elanus leucurus</i>	-/FP	Lowland areas west of the Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for	Loss of grassland and wetland habitats to agriculture and urban development.	No reported occurrences in the project area. No suitable nesting habitat in the project area.

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		San Diego county at the Mexico border.	foraging.		
Northern harrier <i>Circus cyaneus</i>	-/SSC	Throughout lowland California; has been recorded in fall at high elevations.	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover.	Loss of habitat to agricultural and urban development	No reported occurrences in the project area. No suitable nesting or foraging habitat in the project area.
Swainson's hawk <i>Buteo swainsoni</i>	SCC/T	Lower Sacramento and San Joaquin valleys, the Klamath Basin, the Butte Valley; the state's highest nesting densities occur near Davis and Woodland, Yolo county.	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, grain fields, and vegetable crops.	Loss of riparian, agriculture, and grassland habitats; vulnerable to human disturbances at nest sites.	Known nest sites within 10 miles from project area. Low potential for foraging in project area because the site is fragmented within the urban landscape. Suitable nesting habitat along Dry Creek and the Tuolumne River.
Prairie falcon <i>Falco mexicanus</i>	SCC/SSC	Found as permanent resident on the south coast, Transverse, Peninsular, and northern Cascade range, the southeastern deserts, Inyo-White Mountains, Modoc, Lassen, and Plumas counties, and the foothills surrounding the central Valley, along the coast from Santa Barbara county to San Diego county, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo counties.	Cliffs or escarpments for nesting; adjacent dry, open terrain or uplands, marshes, and seasonal marshes for foraging.	Possibly pesticide contamination, robbing of eyries by falconers and illegal shooting, human disturbance at nest site.	No reported occurrences in the project area. No suitable foraging or nesting habitat in the project area.
Mountain plover <i>Charadrius montanus</i>	C/SSC	Does not breed in California; in winter, found in the central Valley south of Yuba county, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego counties; parts of Imperial, Riverside, Kern and Los Angeles counties.	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grain fields.	Loss of habitat to agriculture and urban development; decline of California's wintering population may be attributable to	No reported occurrences in the project area. No suitable foraging habitat in the project area.

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				disturbance of breeding population.	
Western burrowing owl <i>Athene cunicularia hypugea</i>	SCC/SSC	Lowlands throughout California, including the central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast.	Rodent burrows in sparse grassland, desert, and agricultural habitats.	Loss of habitat, human disturbance at nesting burrows.	Reported occurrence within 5 miles of the project area. Potential wintering and breeding habitat.
Loggerhead shrike <i>Lanius ludovicianus</i>	SCC/SSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north of Mendocino county, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Loss of habitat and pesticide use; still widespread in California.	No reported occurrences in the project area. Potential foraging habitat in annual grasslands to the northeast of the project site.
Tricolored blackbird <i>Agelaius tricolor</i>	SCC/SSC	Largely endemic to California; permanent residents in the central Valley from Butte county to Kern county; at scattered coastal locations from Marin county south to San Diego county; breeds at scattered locations in Lake, Sonoma, and Solano counties; rare nester in Siskiyou, Modoc, and Lassen counties.	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; nesting habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony; requires large foraging areas, including marshes, pastures, agricultural wetlands, dairies, and feedlots, where insect prey is abundant.	Loss of wetland and upland breeding habitats from conversion to agriculture and urban development and to water development projects, pesticides contamination, human disturbance of nesting colonies.	There are several known occurrences of nesting birds within the county, exact locational information is withheld from public. No suitable foraging or breeding habitat in the project area.
Sand Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern county north to Contra Costa county.	Saltbush scrub, grassland, oak, savanna, and freshwater scrub.	Habitat loss to agricultural development; altered habitat from grazing, mining, and industrial development;	Known to occur in both wetern and eastern (near La Grange approximately 12 miles east of the Modesto Reservoir) Stanislaus County. No suitable

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				predation by dogs and non-native red foxes.	habitat in the project area.
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***Status Definitions:***

**Federal**

- E listed as endangered under the federal Endangered Species Act.
- T listed as threatened under the federal Endangered Species Act.
- PE proposed for federal listing as endangered under the federal Endangered Species Act.
- PT proposed for federal listing as threatened under the federal Endangered Species Act.
- C Species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
- SC other species of concern to the Service.
- X critical habitat considered to be an area essential to the conservation of the species
- no listing.

**State**

- E listed as endangered under the Californian Endangered Species Act.
- T listed as threatened under the Californian Endangered Species Act.
- FP fully protected under the Californian Endangered Species Act.
- SSC Species of special concern in California
- no listing.



- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?

### ***ASSESSMENT OF BIOLOGICAL RESOURCES***

#### **DEFINITIONS OF BIOLOGICAL RESOURCES**

Biological Resources include natural plant and animal species and their habitats, communities and ecosystems.

#### **DEFINITION OF TERMS**

The following is a partial glossary of biological terminology:

***Significant Biological Resources:*** Include any of the following:

- Habitats of endangered, threatened or rare species
- Wetland habitats
- Migration corridors for fish or wildlife
- Locally important species/communities

***Endangered Species:***

- (a) Listed on State or federal endangered species lists, or
- (b) A species whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factor.

***Threatened Species:***

- (a) Listed on state or federal threatened species lists, or
- (b) Any species which is likely to become endangered in the foreseeable future.

***Rare Species:***

- (a) Listed on state or federal rare species lists, or
- (b) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or the species is likely to become endangered within the foreseeable future throughout all of a significant portion of its range and may be considered "threatened" as that term is used in the federal Endangered Species Act.

***Candidate Species:***

Listed on federal or state candidate species list (i.e., species is a candidate for listing as "threatened", "endangered", or "rare".)

Note: The USFWS and the California DFG can provide current lists of endangered, threatened, rare species.

***Special Status or Sensitive Species***

An Endangered, Threatened, Rare, or Candidate Species.

***Wetland Habitat*** - Plant communities that are associated with lands which are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. The frequency of occurrence of water is sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs and seeps. Wetlands, rivers, and streams are protected from dredging, filling and alteration. Any work in a creek requires a Streambed Alteration Agreement with the Department of Fish and Game (Fish and Game Code §1600-1606).

***Migration Corridor*** - An area, as defined by a qualified biologist, that experiences recurrent fish or wildlife movement and that is important to fish or wildlife species seeking to move from one habitat area to another.

***Migratory Birds*** Migratory birds and their nests are protected from disturbance by the Migratory Bird Treaty Act. Most bird species are considered migratory.

***Locally Important Species*** - A plant or animal species which is not an endangered, threatened, or rare species, but which is considered by qualified biologists to be a quality example or unique species within the city and region. This term also includes Candidate species.

***Locally Important Community*** - A plant or animal community which is considered by qualified biologists to be a quality example characteristic of or unique to the city or region.

***Taking Permit for a "Sensitive Species"*** The "taking" of an endangered or threatened species is allowed only by permission of the USFWS under Section 10 of the federal ESA. Extensive consultation with agency officials is required before a permit is considered. Persons wishing to obtain this permit must submit a Habitat Conservation Plan to the Secretary of the Interior. The Secretary is authorized to issue "incidental taking" permits only if the applicant has minimized and mitigated the impacts of the taking to the fullest possible extent, adequate funding for the plan is provided, and the taking does not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

**THRESHOLD CRITERIA**

Section 15065(a) of the CEQA Guidelines states that a project may have a significant effect if it has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare or threatened species.

The following general guidelines are presented to identify the general parameters of "significant impacts".

1. *Sensitive Species* A significant impact to such species would occur if a project would directly or indirectly:

- reduce sensitive species population
- reduce sensitive species habitat
- restrict sensitive reproductive capacity

2. *Wetland Habitat* A significant impact would result from the direct reduction of, or a substantial indirect impact to, a wetland habitat. A substantial impact would involve grading, excavation, or other construction activities that would result in the removal of plant material within 50 feet of the high water level of the wetland unless the project is undertaken in accordance with the U.S. Army Corps of Engineers Section 404 Wetland Permit program.

3. *Migration Corridors* A significant impact to a migration corridor would result if a project would substantially interfere with the use of said area by fish or wildlife. A substantial impact would involve elimination of native vegetation, erection of physical barriers, or intimidation of fish or wildlife via introduction of noise, light, development or increased human presence within 100 feet of a designated migration corridor or such other standard established by the USFWS, California DFG or adopted Habitat Conservation Plan.

4. *Locally Important Species/Communities* Since this group of species/communities is so diverse, significance must be made by a qualified biologist on a case-by-case basis.

#### ***ASSESSMENT OF CONSISTENCY WITH A CONSERVATION PLAN***

##### **DEFINITION OF ISSUE**

A Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional or state habitat conservation plan is a plan for the conservation, preservation and protection of the habitat of a species or number of environmentally protected wildlife species. The goals, policies and programs contained in the plan are established on the basis of scientific knowledge of the species and its habitat needs and as adopted by federal, state and/or local jurisdictions for the protection of sensitive wildlife species.

##### **THRESHOLD CRITERIA**

Any project that is inconsistent with a Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan is considered as having a significant impact.

***Methods:***

The area within the City's proposed Sphere of Influence and future urban expansion area is likely to be occupied by physical development that can be approximated by review of the proposed land use classification system of the plan. Density of population and intensity of use within these areas may, however, vary according to the circumstances of a specific site and the developers intended plan.

Biological resource impacts can occur at the level of major plant communities as well as at the individual species level. (See Table 3.4.1 and Exhibit 3.4.1) Individual species live and depend upon the habitat that would be affected by development. Thus, an impact analysis examines whether or not potentially significant impacts are likely to occur on major habitat types.

If it is determined, through specific development plan site analysis, that major habitats are found to be significantly affected, then the analysis examines whether or not specific taxa of plants and animals of interest within each habitat type are also likely to be affected.

Potential significant impacts are evaluated within the context of present day mitigation technology and the regulatory environment. Development will occur in the proposed Sphere of Influence over the next twenty years. Site specific development review procedures will reflect the technology and environmental laws in effect at the time development is proposed.

***B. Potential Significant Impacts:***

***Biological Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential biological impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

The Waterford Vision 2025 General Plan Update contains policies and provisions that establish open space corridors along Dry Creek, the Tuolumne River, irrigation canals and other waterways which facilitate wildlife movement in the region. Parkways, trails and other open space areas also contribute to the inventory of areas that can be used for wildlife movement within the city's urban growth areas. The final determination, however, will be made upon specific development project site plans and special biological studies at the time of development proposal review.

- *Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance?*

The City of Waterford's General Plan contains the city's local policy with respect to protection of biological resources. All ordinances, regulations and other city provisions for the protection of biological resources will be established as implementation measures of the general plan policies.

- *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?*

There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans or other approved local, regional, or state habitat conservation plans in effect within the city's planning area that will conflict with the goals, policies and standards of the Waterford General Plan.

*Biological Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, there may be impacts that could result in a significant adverse impact to biological resources due to project implementation.

- *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*

The Waterford Vision 2025 General Plan Update proposes expansion of the Waterford urban area to lands that are not known to contain species identified as a candidate, sensitive, or special status species. Areas containing habitat that could be used by such species, primarily along the Tuolumne River and Dry Creek, have been set aside for preservation. The final determination, however, will be made upon specific development project site plans and special biological studies at the time of development proposal review.

- *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*

The Waterford Vision 2025 General Plan Update proposes policies and standards for development adjacent to the two riparian habitat areas located along the northern and southern boundaries of the city's planned growth. Tuolumne River and Dry Creek riparian corridors have been set aside for preservation as open space.

- *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

The Waterford Vision 2025 General Plan Update will not have a substantial adverse effect on federally protected wetlands. There are no proposals or policies contained in the city's plan contemplating direct removal, filling, hydrological interruption of these wetlands. The final determination, however, will be made upon specific development project site plans and special biological studies at the time of development proposal review.

***C. Proposed General Plan Goals & Policies:***

The Waterford General Plan contains policies and goals that aim to preserve biological resources of the city. There are policies in the Land Use, Sustainable Development and Urban Design chapters of the general plan that while not directly aimed toward biological resource preservation, have the effect of preserving and protecting the city's waterways and riparian corridors that contain many of the city's biological assets. The Urban Expansion and Open Space Conservation chapters of the general plan contain specific goals and policies for the preservation and enhancement of the city's biological resources.

**Overall Goals for Cultural Resource Preservation**

**Goal Area- Urban Expansion (UE)**

**UE-A Compact Urban Form**

**Policies**

**UE-2** Designate areas for new urban development which reflect the physical characteristics and environmental constraints of the planning area.

**Goal Area- Open Space-Conservation (OS)**

**OS-Maintain** Waterford's Biological Resources

**OS-Maintain** a High-Quality, Expanding Urban Forest

**OS-Preserve** Scenic Corridors and Resources

**OS-Improve** and Enhance Water Quality

**Policies**

**OS-A.1** Identify and preserve wildlife habitats which support rare, endangered, or threatened species.

**OS-A.2** Preserve and enhance the Tuolumne River and Dry Creek in their natural state throughout the planning area.

**OS-A.4.** Improve and expand the city's urban forest.

**OS-A.5.** Preserve and enhance water quality

***D. Short-Term Impacts:***

Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on the biological resources of the area but will lead to improved regulation of development with respect to potential wildlife impacts.

***E. Long-Term Impacts:***

Growth and development within the urban area of the city will result in some modifications to the agricultural setting, which presently supports a diverse number of wildlife species. Landscaping and earth modifications will modify existing agricultural habitat but create other habitat suitable for many local wildlife species. Long-term development trends will increase some wildlife species that are compatible with urban development, and will reduce the populations of other less adaptive species.

There are potential impacts to riparian areas and areas along Dry Creek and the Tuolumne River channels. Other impacts could result in the removal of large trees that are suitable nesting sites for raptors and other large bird species. Development and construction activities undertaken in accordance with the goals, policies and standards of the Waterford Vision 2025 General Plan Update, could result in diminishing the value of critical habitat of sensitive and or protected species.

***F. Cumulative Impacts:***

Urbanization will result in the conversion of farmland to urban uses which will, in turn, change the nature of wildlife habitat in the area. These changes will have little impact on overall wildlife populations in the region given the extensive area surrounding the city that is maintained as farmland and the extensive wetland preserves that exist to the east of the city.

***G. Secondary Impacts:***

Habitat mitigation programs could reduce potential development area available for new housing, employment and service centers in the city and region which could promote “sprawl” types of development patterns and increase public services costs through the reduction of a “compact urban form.”

***3.5.4 Mitigation Measures***

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As part of the city’s development review program, individual development projects are typically required to prepare biological studies to evaluate the project’s impact on biological resources. As a result of these studies, specific project level mitigation measures are required as part of the project’s conditions of approval. Detailed development project impacts cannot be determined at this “policy level” document until specific development proposals are available for review.

***3.5.5 Level of Significance After Mitigation***

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No detailed mitigation is proposed at this time. Future development impacts will be required, by state and federal regulation, to be mitigated prior to development approval.

## ***Section 3.6***

### ***Cultural Resources***

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This environmental issue focuses on the impacts of a project on cultural resources including, but not limited to, the adverse change to a significant historical or archaeological resource. Other areas of concern include the potential for a project to adversely impact a unique paleontological resource, geologic feature or disturb any human remains.

#### ***3.6.1 Environmental Setting***

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##### ***Prehistoric Setting***

Although early Holocene (10,000-12,000 years ago) peoples probably inhabited or passed through the San Joaquin Valley, few indications of their activities have been discovered, probably because of deep burial beneath accumulated silt. Examples of early Holocene cultural remains are known from the Tulare Basin in the southern San Joaquin Valley. Based on typological similarities with artifacts recovered in other parts of the western United States (fluted-point tradition), early occupation (Phase I) of the Tulare Basin may date to 11,500 years ago. Radiocarbon dating for material excavated in the Tulare Basin (specifically, Buena Vista Lake) established dates back to 8,250 and 7,650 years ago.

The prehistoric chronology of the western side of the San Joaquin Valley has been derived from the excavation of several sites discovered within reservoir project areas and can be divided into a series of complexes.

***The Positas Complex***, dating from approximately 3300 to 2600 B.C., is characterized by small shaped mortars, cylindrical pestles, milling stones, perforated flat cobbles, and spire-lopped Olivella beads.

***The Pacheco Complex*** is dated from approximately 2600 B.C. to A.D. 300 and is characterized by foliate bifaces, rectangular shell ornaments, and thick rectangular Olivella beads in the early phase and spire-ground Olivella beads, perforated canine teeth, bone awls, whistles, grass saws, large-stemmed and side-notched points, milling stones, mortars, and pestles in the later phase.

***The Gonzaga Complex***, dating from approximately A.D. 300 to 1000, is characterized by extended and flexed burials; bowl mortars; shaped pestles; squared and tapered-stem points; few bone awls; distinctive shell ornaments; and thin rectangular, split-punched, and oval Olivella beads.

***The Panoche Complex*** is dated from approximately A.D. 1500 to 1850 and is recognized by large circular structures (pits), flexed burials and primary and secondary cremations, varied mortars and pestles, bone awls, whistles, small side-notched points, clamshell disk beads, and other bead types.



These complexes appear to indicate occupation of the valley by people engaged in acorn gathering and hunting. Material found in Pacheco to Panoche strata indicates a trade relationship with people of the Delta, the south coast, and southern inland areas.

### ***Ethnographic Setting***

The project area was once occupied by the Northern Valley Yokuts, who lived in the northern San Joaquin Valley from around Bear Creek near Merced north of Stockton to the bend in the San Joaquin River near Mendota. "Yokuts" is a term applied to a large and diverse number of peoples who inhabited the San Joaquin Valley and Sierra Nevada foothills of central California. The Yokut cultures include three primary divisions corresponding to gross environmental zones: the Southern San Joaquin Valley Yokuts, the Northern San Joaquin Valley Yokuts, and the Foothill Yokuts.

The Yokut language belongs to the Yokutsan family, Penutian stock, and has been divided into between two and 12 subdivisions. Each of the primary Yokut cultural groups included speakers of several dialects.

No Yokut tribal organization encompassed all the peoples speaking Yokutsan languages, nor was there even a tribal organization that encompassed an entire primary division, such as Northern Valley Yokuts. These are linguistic and geographic designations only. Similar to most Native American groups in California, the largest political entity among the Yokuts was that of the tribelet. A tribelet consisted of a large village and a few smaller surrounding villages. Larger villages and tribelets had a chief or headman, an advisory position that was passed from father to son.

In general, the Yokuts were seasonally mobile hunter-gatherers with semipermanent villages. Seasonal movements to temporary camps occurred to exploit food resources in other environmental zones. The primary differences between the various Yokut groups relate to the different resources available in their territories. The South Valley groups were adapted to a lake-dough-marsh environment and relied most heavily on fish, waterfowl, roots (especially tale roots), seeds, mussels, turtles, shellfish, and rabbits. Few insects or large mammals were consumed. Acorns were not readily available and thus were not as large a staple food source for these groups as for many other California Native Americans. In contrast, the North Valley Yokuts did rely heavily on acorns as a food staple, along with salmon and other fish.

The Yokuts first came into contact with Europeans when Spanish explorers visited the area in the late 1700s. These early visits were followed by expeditions to recover individuals who had escaped from the missions located further west. The North Valley Yokuts were far more affected by missions than were the other Yokut groups. The loss of individuals to the missions, the influence of runaway neophytes, various epidemics in the 1800s, and the arrival of settlers and miners contributed to the disintegration of Yokut culture.

### ***Cultural Resources***

Only a small percentage of the Waterford area has been surveyed for evidence of cultural

resources, and most of the area's archaeology is unknown. Types of archaeological sites that could occur in Waterford include (but are not limited to) occupation sites, indicated by structural features such as house pits, ceremonial ("dance house") locations, and remains of sweathouses and storage structures, which are often found in areas that have been organically enriched by the accumulation of domestic debris. Occupation site deposits, often called "midden sites", are rich in materials such as charcoal, burned bone, chipped and ground stone, fire-cracked rock, baked clay, shell and glass (trade) beads, and sometimes pottery.

Other types of archaeological sites include cemeteries, isolated burials, quarry sites, petroglyph (rock carvings) and pictograph (rock paintings) sites, kill sites where animals were butchered, and sites where certain types of resources (stone, vegetal, clay, paint pigments) were obtained or processed (bedrock mortars).

### ***Historical Setting***

Bordered by the Tuolumne River, the first modern record (1850s) of permanent residents in Waterford, other than the Native Americans that long frequented the area, were the homesteading and farming activities of William Wilkerson Baker. Because of his homestead the settlement was named Bakersville in 1857. Mr. Baker homesteaded 160 acres just south of the river near the Appling Road Bridge.

The main economic activities of the area were agriculture and fishing as well as commerce with the nearby gold mining communities. The city was a leader in early irrigation and farming practices.

In 1870 the post office was apparently having trouble delivering the mail as the name was being confused with other places (at the time the only other similarity was Bakersfield) so the post office suggested the name be changed. Reflecting the area's river fording characteristics, the name of Waterford was eventually chosen. So in 1870 the name was officially changed to Waterford.

### **Other Important Dates in Waterford History**

- **1866** White Oak School District formed
- **1891** Southern Pacific Railroad reaches Waterford
- **1893** Community Baptist Church services began
- **1904** First telephone service reaches Waterford
- **1908** White Oak School changes to Waterford School
- **1912** First Waterford Library founded
- **1913** Waterford Irrigation District formed
- **1920** First post office building
- **1921** Electricity lights up the streets
- **1938** Grange Hall built at Bentley & Hwy 132
- **1969** Incorporated as a city. Richard M. Moon becomes first Mayor.

### ***Historical Sites and Buildings***

An inventory of historical sites and buildings has not been compiled for the city of

Waterford. The early railroad alignment of the city led to the early layout of the city and its street system. Most of the potentially “historic” assets of the city are located within this area or centered at the intersection of Bentley and “E” Street, the center of the present “downtown” portion of Waterford.

### ***3.6.2 Environmental Impacts***

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To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in development and construction activity will result. This activity will most likely involve excavation that could disturb cultural resource sites presently unknown or impact historic buildings or structures.

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

As open land develops the potential for damaging or disturbing cultural resources becomes more likely. Disturbance or destruction of cultural resources may result from any type of activity that involves disturbing the earth or removing existing structures.

#### ***Historical Sites and Buildings***

With residential growth and development in Waterford, there will be increased pressure on existing development in the established residential neighborhoods and the central downtown area of Waterford. With new development will come pressure to “modernize” or demolish older buildings and structures to make better use of increasingly valuable and limited land resources in the central and older portions of Waterford.

#### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Cultural Resources as follows:

##### ***Would The Project:***

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- Disturb any human remains, including those interred outside of formal cemeteries?

##### **DEFINITION OF TERMS COMMONLY ENCOUNTERED:**

###### ***Area of Potential Effects:***

*An Area of Potential Effects (APE)* is established to define the boundaries of the area within which a proposed project might affect, either *directly* or *indirectly*, any historic properties. The APE should be large enough to include all listed, eligible, or potentially eligible properties which may reasonably be affected by the proposed project.

*Direct APE Effect.* Direct effects are associated with construction activity and have the potential to immediately alter, diminish, or destroy all or part of the character and quality of historic and archaeological resources (pre-historic and historic).

*Indirect APE Effect.* Indirect effects are related to the primary consequences of the completed project and may be several steps removed from the project in the chain of cause and effect. Indirect impacts can normally be expected to cause change in the character or use of built environment by the introduction of undesirable auditory or visual intrusions. Noise and vibration from construction activity itself may be considered indirect effects. Indirect impacts generally have little potential to alter archaeological resources because the significance of the archaeological resources usually lies only in the information they contain.

*Historical Resource* In accordance with Section 15064.5 of the CEQA Guidelines, a historical resource includes the following:

- (1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.
- (2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code.
- (3) Any object, building, structure, site, area, place, record, or manuscript that the city determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, and the resource meets the criteria for listing in the California Register of Historical Resources.

*Historic Register Criteria* California Register of Historical Resources (Pub. Res. Code 5024.1, Title 14 CCR, Section 4852) includes the following criteria for determining the eligibility for listing a historical resource in the California Register of Historic Resources:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- (2) Is associated with the lives of persons important in our past;
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

*Substantial Adverse Effect:* A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.

- (1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.
- (2) The significance of an historical resource is materially impaired when a project:
  - (A) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, the California Register of Historical Resources; or
  - (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
  - (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources.

**Note:** Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.

*Historic Integrity* Integrity is defined in Bulletin 15; "How to Apply the National Register Criteria for Evaluation, (U.S. Department of the Interior, National Park Service 1982) as:

"The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period. If a property retains the physical characteristics it possessed in the past then it has the capacity to convey association with historical patterns or persons, architectural or engineering design and technology, or information about a culture or peoples."

Integrity is a quality that applies to resources in specific ways:

- Location,

- Design,
- Setting,
- Materials,
- Workmanship, feeling, and
- Association.

A resource must possess two, and usually more, of these kinds of integrity, depending on the context and the reasons why the property is significant.

The principal test to assess whether a property retains integrity is to ask if it still retains the identity or character for which it is important. While it is not necessary for the property to retain all the physical features or characteristics it had during its period of significance, it must retain the essential physical features that convey its past identity or character and, thus its significance.

*Historical Significance* A property must meet one or more of the following evaluation criteria to be considered representative of a significant theme or pattern in the history, architecture, archaeology, engineering or culture of an area. The criteria are applied after identifying relevant historical themes or patterns.

- (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- (2) Is associated with the lives of persons important in our past;
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

Properties considered significant for their information potential (Criterion "4") must contain data sets that, when analyzed, will address important defined research questions. Research questions are typically developed as part of a research design, which specifies not only the questions to be addressed, but also the types of data needed to address the questions and the techniques to be used to recover and analyze the data.

## ***ASSESSMENT OF HISTORICAL RESOURCES***

### **DEFINITION OF HISTORIC RESOURCES**

Historic Resources include, but are not limited to, any object, building, structure, site, area, or place that has historic relevance to the development of city, county, the state of California, or the United States of America. The period of time inclusive of "historic resources" is generally considered to be the period of "post- contact" with European settlers, but can include archaeologically important items as well, i.e. archaeological resources can be historic resources, but historic resources are not always archaeological resources.

#### THRESHOLD CRITERIA

Any alteration, change, movement, relocation, or disturbance of a resource which would have a “*substantial adverse effect*” on “*historical resources*” as defined by CEQA is to be deemed “significant”. A substantial adverse effect may also result from activities undertaken within the “*area of potential effect*” (APE) of a project undertaken near a “*historical resource*”.

#### **ASSESSMENT OF ARCHAEOLOGICAL RESOURCES**

##### DEFINITION OF ARCHAEOLOGICAL RESOURCES

Archaeological resources are the material remains (artifacts, structures, refuse, etc.) produced purposely or accidentally by members of prehistoric human cultures.

##### DEFINITION OF ARCHAEOLOGICAL TERMS

*Archaeological Resources:* The material remains (artifacts, structures, refuse, etc.) produced purposely or accidentally by members of prehistoric human cultures.

*Record Search:* Preliminary assessment of archaeological resource literature and other available data to determine whether prior survey, analysis, or excavation has occurred in the project area; and to provide initial interpretations of impact and significance.

*Phase I Assessment:* A surface survey of the project area conducted by a qualified consultant, combined with a detailed record search.

*Phase II Assessment:* A detailed assessment of archaeological resource sites or features, consisting of intensive surface analysis and, where appropriate, limited test excavations, auger-boring, etc., to help determine site spatial boundaries and temporal depth.

*Phase III Assessment:* A ‘mixed strategy reconnaissance’ involving a combination of archaeological site analysis techniques, as determined by the archaeological consultant(s).

*Project Area:* The area covered by the discretionary permit request, usually including that area within 500 feet of the land area to be directly impacted by the proposed project.

#### THRESHOLD CRITERIA

CEQA requires protection of unique archaeological resources that may be damaged or destroyed by a development project. For the purposes of CEQA, a unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as oldest of its type or best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or

historic event or person.

The determination as to the “unique” status of the archaeological resource is a determination that must be made by a qualified archaeologist following a Phase I Assessment of the site. The determination of the limits of the site may require a Phase II Assessment.

A construction project involving grading and excavation in a unique archaeological resource or site will be considered to create a potential significant impact on the environment with respect to archaeological resources.

### ***ASSESSMENT OF PALEONTOLOGICAL RESOURCES***

#### **DEFINITION OF PALEONTOLOGICAL RESOURCES:**

Paleontological resources refer to the fossilized remains of plant and animal life. Careful scientific study of fossilized life forms preserved in the sedimentary and metamorphic rocks of the region can result in the identification of local paleo-environmental conditions and biological evolutionary trends.

#### **DEFINITION OF PALEONTOLOGICAL TERMS**

The following is a glossary of paleontological terminology.

*Fossils* The remains or indications of once-living organisms.

*Vertebrate Fossils (Rare)* Animals containing a spine or endoskeleton.

*Megainvertebrate Fossils (Rare)* Animals containing no bony or cartilaginous material.

*Microinvertebrate Fossils (Abundant)* Also known as Microfossils, and often of economic importance.

*Floral Organic Remains (Abundant)* Simple and complex non-faunal materials.

*Paleoenvironment Indicators* The use of fossilized plant and animal materials, particularly pollens, in reconstructing past environmental conditions.

*Paleontological Resource Importance* reflects the potential productivity of a formation or exposure and the importance of the particular fossils located in the formation or exposure.

#### **PALEONTOLOGICAL IMPACTS**

The geologic formation in which proposed projects would be located can be used to establish the likelihood of paleontological resources being present and their relative importance.

Fossil remains are considered important if they are,

- 1) well preserved,
- 2) identifiable,
- 3) type/topotypic specimens,



- 4) age diagnostic,
- 5) useful in environmental reconstruction,
- 6) represent rare and/or endemic taxa,
- 7) represent a diverse assemblage,
- 8) represent associated marine and non-marine taxa.

Vertebrate and Megainvertebrate fossils are considered highly important because they are comparatively rare and allow precise age determinations and environmental reconstructions for the strata in which they occur. Microinvertebrate fossils (microfossils) are much more abundant and, for this reason and because of their small size, would not be adversely impacted to the same degree as vertebrate and megainvertebrate fossils.

A variety of geologic formations are of undetermined paleontological importance due to a lack of data concerning the particular rock outcropping in question. In addition, Quaternary deposits, which represent the last 10,000 years of geologic history and includes alluvial deposits and landslides, have the potential for high to no resource importance.

Direct impacts to fossil sites include grading and excavation of fossiliferous rock, which can result in the loss of scientifically important fossil specimens and associated geological data. Indirect impacts include increased access opportunities and unauthorized collection of fossil materials. Cumulative impacts include all projects that contribute to the progressive loss of exposed rock in the area that can be studied and prospected for fossil remains.

#### **THRESHOLD CRITERIA**

A construction project involving grading and excavation in an area where vertebrate and megainvertebrate fossils are likely to be found will be considered to create a potential significant impact on the environment with respect to paleontological resources.

#### ***ASSESSMENT OF HUMAN REMAINS***

##### **DEFINITION OF ISSUE**

Cemeteries contain important cultural and historic information regarding a community. The accidental discovery or recognition of any human remains in any location other than a dedicated cemetery can also contribute important information regarding historic or pre-historic development patterns of the area. The need to record this information in a scientific manner is necessary to assure that this information is not lost as a result of the disinterment, disturbance or relocation of human remains.

#### **THRESHOLD CRITERIA**

Excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains is considered significant unless all applicable provision of state law and local regulations have been complied with including, but not limited to, Public Resources Code sections 5097.98, 21082, 21083, 21083.2, 21084, 21084.1, and 21087.

***B. Potential Significant Impacts:***

***Cultural Resource Impacts Found to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following resource impacts could occur:

- *Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?*

The adoption and implementation of the general plan is not likely to result in a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the CEQA Guidelines. The city contains buildings and structures that date from the turn of the century and are deemed to be locally significant. The city's permit and development review process is sensitive to any construction activities that could adversely impact the city's historic charm. Projects undertaken in accordance with the general plan may result in construction activities that could disturb a historic resource, however, these projects would be subject to individual review and approval and subject to the requirements of state law with respect to any disturbances to historical resources.

- *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?*

The adoption and implementation of the general plan is not likely to result in a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines. Due to the nature of the area, it is not likely that any archaeological resources exist in the city's planning area. Projects undertaken in accordance with the general plan may result in construction activities that could disturb an archaeological resource. However, these projects would be subject to individual review and approval and subject to the requirements of state law with respect any disturbances to archaeological resources.

- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

The adoption and implementation of the general plan is not likely to result in the direct or indirect destruction of any unique paleontological resource or site or a unique geologic feature. Due to the nature of the area, it is not likely that any paleontological resources exist in the area. There are no unique geologic features within the city's urban area or the proposed urban expansion area. Projects undertaken in accordance with the general plan may result in construction activities that could disturb a paleontological resource, however, these projects would be subject to individual review and approval and subject to the requirements of state law with respect any disturbances to paleontological resources.

- *Disturb any human remains, including those interred outside of formal cemeteries?*

The adoption and implementation of the general plan is not likely to result in the disturbance of any human remains. Projects undertaken in accordance with the general plan may result in construction activities that could disturb human remains; however, these projects would be subject to individual review and approval and subject to the requirements of state law with respect any disturbances to a burial site.

***C. Proposed General Plan Goals & Policies:***

The Waterford General Plan contains policies and goals that aim to preserve the charm and economic attractiveness of the city. There are policies in the Land Use and Housing chapters of the general plan, while not directly aimed at cultural resource preservation, have the effect of preserving and protecting the city's cultural assets. The Sustainable Development Chapter of the general plan contains specific goals and policies for the preservation and enhancement of the city's cultural resources.

**Overall Goals for Cultural Resource Preservation**

***Goal Area- Sustainable Development (SD)***

**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.

***D. Short-Term Impacts:***

Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on cultural resources of the area but will lead to improved regulation of development with respect to potential cultural resource impacts.

***E. Long-Term Impacts:***

As economic growth occurs in the city, changes will be proposed that will result to modification to, and around, some of the city's historic resources. These development proposals, which will be consistent with the policies and standards of the general plan, will be reviewed and approved based upon compliance with the cultural resource requirements of state and federal law. It can be expected that some changes in cultural resources will occur as older buildings are upgraded to comply with modern building codes such as the requirements of the American with Disabilities Act (ADA) or requirements for un-reinforced concrete structures. As a result of implementation of modern building codes, some cultural resources may be lost over time. It should be noted that this loss would most likely occur regardless of general plan implementation and the plan contains policies and standards that could minimize this expected future impact.

***F. Cumulative Impacts:***

Modifications to historic buildings that may occur as the city grows and develops will be part of the changing urban landscape and will also result in aesthetic changes in the city. These changes, based on the policies and guidance provided in the general plan, may be seen as an improvement over the existing visual and cultural setting.

***G. Secondary Impacts:***

As a result of these regulatory standards, it is expected that there will be an increase in the cost of construction and development on sites that contain cultural resources. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city.

***3.6.3 Mitigation Measures***

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As part of the city's development review program, individual development projects may be required to prepare studies to evaluate the project's potential impact on cultural resources. As a result of these studies, specific project level mitigation measures may be required as part of the project's conditions of approval.

***3.6.4 Level of Significance After Mitigation***

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Projects that are undertaken in a manner that is consistent with the policies and standards of the City of Waterford General Plan and comply with all appropriate federal and state cultural resource regulations will not result in the creation of a significance adverse physical impact on cultural resources within the city of Waterford.

## ***Section 3.7***

### ***Geology and Soils***

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This environmental issue focuses on the impacts of natural geologic or soil conditions on a project. Specific concerns include earthquakes and seismic related hazards, or unstable soils. This section relies on data published, in large part, in the Stanislaus County General Plan and environmental impact report. These documents include all areas within Stanislaus County of which the city of Waterford is a part.

#### ***3.7 1 Environmental Setting***

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##### ***Geology***

Stanislaus County consists of three distinct geologic regions: the eastern dissected uplands, the San Joaquin Valley, and the western mountains. The eastern portion of the county comprises Pliocene and Pleistocene non-marine and sedimentary deposits, recent river- and major stream-channel deposits, Pliocene non-marine sedimentary rocks, Quaternary non-marine terrace deposits, undivided Eocene and Miocene non-marine sedimentary rocks, and Jurassic and/or Triassic metavolcanic rocks. The San Joaquin Valley portion is primarily made up of recent alluvial fan deposits, recent river- and major stream-channel deposits, and recent basin deposits. The western mountain portion of the county is composed of rocks of the Franciscan Formation, Mesozoic rocks, upper Cretaceous marine sedimentary rocks, Paleocene and Eocene marine sedimentary rocks, and Pliocene non-marine sedimentary rocks.

##### **Regional Geologic Hazards**

###### ***Faults***

Several faults extend through the county, although most have been inactive for the last 150 million years. The Ortigalita fault in the western portion of the county has been active within the last 12,000 years and has an associated Alquist- Priolo Earthquake Fault Zone.

###### ***Ground Shaking***

Stanislaus County is subject to a range of ground-shaking intensities. Using the Modified Mercalli Intensity Scale of 1931 as a reference, the eastern half of the county can be expected to have an intensity of VI or VII, producing minor to moderate damage. The western half of the county can be expected to have an intensity of VII or VIII, producing considerable damage to ordinary structures (county of Stanislaus 1987). The probability of liquefaction (i.e., temporary loss of soil strength) and related ground failures is expected to be highest in areas that are subject to ground shaking; have clean, unconsolidated alluvial sediments and soils; and have groundwater within 50 feet of the ground surface.

###### ***Landslides***

The Diablo Range in the western portion of the county is more prone to landsliding than other areas. Of the two geologic formations in this portion of the county (the Franciscan Formation and the Great Valley sequence), the Franciscan Formation is considered more unstable. Landslides in the Great Valley sequence are common adjacent to the Tesla-

Ortigalita fault and along streams and road cuts (county of Stanislaus 1987). Bluff areas along the north bank of the Tuolumne River, west of the Hickman Bridge, exhibit a high degree of instability as do some of the bluffs along the south bank of the river from the bridge to the east. All areas along the Tuolumne River and Dry Creek channels should be considered subject to landslide activity as part of the natural landform process and could become very unstable during the wet season and particularly during the winter months in an earthquake event.

### **Soils**

The Soil Conservation Service (now known as the Natural Resources Conservation Service (NRCS)) has mapped 30 different soil associations in the eight physiographic provinces in the county. In the eastern portion of Stanislaus County (east of I-5), where the city of Waterford is located, there are six physiographic provinces and 16 soil associations. The physiographic provinces in this area are recent alluvial floodplains, basin lands, young alluvial fans, moderately old fans, low alluvial terraces, and high alluvial terraces. The following sections briefly describe the soil associations within each of the six physiographic provinces.

#### ***Recent Alluvial Floodplains***

Soils in this physiographic province are members of the Columbia-Grangeville-Temple and Honcut-Wyman associations. These soils are very young because of the repeated deposition of alluvium. Slopes are generally level. These soils are deep and range from very well drained and productive to poorly drained and saline-alkaline. Erosion hazard is estimated to be low.

#### ***Basin Lands***

Soils in this physiographic province are members of the Camarillo-Orestimba, Waukena-Fresno, and Capay associations. Slopes are generally level. These soils are generally alluvial in origin and are poorly drained because of their high clay content. Some of these soils would be considered expansive under the Uniform Building Code. Erosion hazard is estimated to be low.

#### ***Young Alluvial Fans***

Soils in this physiographic province are members of the Hanford-Tujunga, Vernalis-Salado-El Solyo, Hilmar-Delhi, Dinuba-Hanford, Myers-Stomar, and Modesto-Chualar associations. Slopes are generally level. These soils are generally found adjacent to the floodplains and basin lands on both sides of the San Joaquin River. Erosion hazard is estimated to be low.

#### ***Moderately Old Fans, and Low Alluvial Terraces***

Soils in these physiographic provinces are members of the Azcharis-Positas, San Joaquin-Madera, and Madera associations. Slopes are generally level with some variability in the rolling hills. These soils are generally older than the soils of the young alluvial fans, resulting in rock-like hardness at shallow depths east of the San Joaquin River. Erosion hazard is estimated to be low to moderate.

### ***High Alluvial Terraces***

Soils in this physiographic province are members of the Whitney-Montpelier-Rocklin and Redding-Pentz-Peters associations. Slopes are generally level with some variability in the rolling hills. Where the land surface is nearly level or only gently undulating, the soils have a subsoil of dense clay or a hardpan. The soils have a lower clay content on the rolling hills. Erosion hazard is estimated to be low to moderate.

According to the *Soil survey for Eastern Stanislaus County* (1990) soils within the study area range from B-D, with Type C soils accounting for approximately 56 percent of the soils, Type B soils accounting for 42 percent of the soils and Type D soils accounting for approximately 4 percent of the soils.

The NRCS classifies soils into four hydrologic soil groups based on the soil's runoff potential:

**Group A** is sand, loamy sand or sandy loam types of soils. These soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.

**Group B** is silt loam or loam. These soils have a moderate infiltration rate when thoroughly wetted and primarily consist of moderately drained soils with moderately fine to moderately coarse textures.

**Group C** soils are sandy clay loam. These soils have low infiltration rates when thoroughly wetted and primarily consist of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.

**Group D** soils are clay loam, silty clay loam, sandy clay, silty clay or clay. These soils have the highest runoff potential and very low infiltration rates when thoroughly wetted. They primarily consist of clay soils with a high swelling potential and/or soils with a permanent high water table.

Soils within the study area range from B-D, with Type C soils accounting for approximately 56 percent of the soils, Type B soils accounting for 42 percent of the soils and Type D soils accounting for approximately 4 percent of the soils.

# Waterford Area Soil Types





**Table 3.7.1**

**Major Soil Types in the Waterford Area  
Eastern Stanislaus Area, California  
Soil Survey Series 1957, No. 20**

<b>Map Symbol</b>	<b>Name</b>	<b>Position &amp; Slope</b>	<b>Drainage</b>	<b>Permeability</b>	<b>Runoff</b>	<b>Erosion</b>	<b>Fertility</b>	<b>Capability Unit</b>
GsA	Greenfield sandy loam, 0 to 3 percent slopes	Nearly level to very gently sloping alluvial terraces	Good	Moderately Rapid	Very Slow	Slight	High	IIw-2
GvA	Greenfield sandy loam, deep over hardpan, 0 to 3 percent slopes	Nearly level to very gently sloping alluvial fans	Good	Moderately Rapid	Very slow	Slight	Moderate to High	IIs-3
HbA	Hanford fine sandy loam, 0 to 3 percent slopes	Nearly level to very gently sloping alluvial fans	Good	Moderately rapid	Very slow	Slight	High	I-1
HbsA	Hanford fine sandy loam deep over silt, 0 to 1 percent slopes	Nearly level to very gently sloping alluvial fans	Good	Moderately rapid	Very slow	Slight	High	I-1
HaA	Hanford sandy loam	Nearly level to very gently sloping alluvial fans	Good	Rapid	Very slow	Slight	Moderate to High	I-1
HdB	Hanford sandy loam, 0 to 8 percent slopes	Gently sloping terrace edge	Good	Rapid	Slow	Slight	Moderate to High	Ile-1
MoA	Modesto loam, 0 to 1 percent slopes	Nearly level valley floor	Moderately Good	Slow	Very slow	Slight	Moderate	IIs-7
MtA	Montpellier coarse sandy loam, 0 to 3 percent slopes	Gently undulating high old fans	Good	Slow	Very slow	Slight	Low	IIIs-3
MtB	Montpellier coarse sandy loam, 3 to 8 percent slopes	Undulating, high old fans	Good	Slow	Slow	Slight	Low	IVe-3
PtC	Peters clay, 8 to 15 percent slopes	Smooth or concave slopes	Good	Slow	Slow to medium	Slight	Moderate	IVe-5
RaA	Raynor clay, 0 to 3 percent slopes	Very gentle slopes; smooth or slightly concave	Good	Slow	Very slow	Slight	High	IIIs-5

**Table 3.7.1 *Continued***  
**Major Soil Types in the Waterford Area**  
**Eastern Stanislaus Area, California**  
**Soil Survey Series 1957, No. 20**

<b>Map Symbol</b>	<b>Name</b>	<b>Position &amp; Slope</b>	<b>Drainage</b>	<b>Permeability</b>	<b>Runoff</b>	<b>Erosion</b>	<b>Fertility</b>	<b>Capability Unit</b>
SaB	San Joaquin sandy loams, 3 to 8 percent slopes	Undulating old alluvial fans	Good	Very slow	Slow to medium	Slight	Low	IVe-3
SnA	Snelling sandy loam, 0 to 3 percent slopes	Smooth, nearly level alluvial terraces	Good	Moderately slow	Slow	Slight	Moderate	IIs7
WmB	Whitney sandy loams, 3 to 8 percent slopes	Ridge tops and undulating areas	Good	Moderate	Slow	Slight	Moderate	IIIe-1

### ***3.7.2 Environmental Impacts***

The city's urban planning area is not identified on an Alquist-Priolo Earthquake Fault Zoning Map; it lies within the Melones Fault system. The earthquake history of the region indicates few damaging earthquakes and the historical record points to the planning area as being earthquake insignificant; however, a large earthquake in the area should be considered possible.

Construction activities associated with projects pursued in implementation phases of the general plan will result in the over-covering of soils with hardscape, buildings and other generally impervious surfaces. Resultant increases in stormwater runoff may generate significant storm drainage-related concerns.

During construction activities surface soils are likely to be exposed and would be potentially more susceptible to increased erosion by wind and water. It is possible that wind or water-borne eroded soils could reach the drainage courses which traverse the planning area as a result of nearby construction.

#### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Geology and Soils as follows:

##### ***Would the project:***

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
  - ii) Strong seismic ground shaking?
  - iii) Seismic-related ground failure, including liquefaction?
  - iv) Landslides?
- Result in substantial soil erosion or loss of topsoil?
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

#### ***ASSESSMENT OF FAULT RUPTURE***

##### **DEFINITION OF FAULT RUPTURE HAZARD**

Fault rupture hazards occur when regional earth movements change the surface configuration of the earth. The movement may be in response to an earthquake (seismically induced) or without any earthshaking (aseismic). These vertical or horizontal changes in the earth can damage structures, utilities, and transportation corridors. Fault rupture/displacement may also alter natural drainage and ground water flow direction. Fault rupture hazards primarily exist along pre-existing faults. These faults are considered to pose a hazard if they have moved within a specific period of time. This period depends

upon the type of project. For almost all projects, the period of interest is the past 11,000 years.

**DEFINITION OF TERMS COMMONLY ENCOUNTERED:**

*Fault* A fracture or a zone of fractures along which there has been displacement of the sides relative to one another parallel to the fracture.

*Active Fault* A fault which has had demonstrated ground surface displacement within Holocene time (the past 11,000 years) and which is considered capable of experiencing movement in response to future earthquakes.

*Alquist-Priolo Earthquake Fault Zone* A seismic hazard zoning map established by the Alquist-Priolo Act in 1972 (Public Resources Code Section 2621 et, seq.) for the purpose of assuring that homes, offices, hospitals, public buildings, and other structures for human occupancy are not built on active faults.

*Blind thrust* A type of fault which does not intersect the earth's surface, but along which compressional stresses are accumulated and released in earthquakes that involve slippage and warping of buried strata.

*Displacement* A general term for the relative movement of two sides of a fault, measured in any chosen direction; also, the specific amount of such movement.

*Flexural Slip* A type of tectonic shear displacement that occurs during folding of sedimentary rocks that are characterized by distinct lithologies and well developed bedding surfaces. Not necessarily associated with earthquakes. (Related Term: Bedding Plane Thrust).

*Left lateral slip* A strike slip fault on which the side opposite the observer has been displaced to the left.

*Potentially Active Faults* A fault which has demonstrated ground surface displacement sometime within the Pleistocene epoch (approximately from 11,000 years ago to 1.6 million years ago). The potential for future ground surface displacement may not be known with confidence.

*Right lateral slip* A strike slip fault on which the side opposite the observer has been displaced to the right.

*Rupture* The portion of the earth surface that has moved due to movement along a fault or series of faults, usually an elongate or linear zone of fractures and furrows.

*Thrust fault* A fault with a dip 45~ or less over much of its extent, on which the hanging wall appears to have moved upward relative to the foot wall. Horizontal compression rather than vertical displacement is its characteristic feature.

#### **THRESHOLD CRITERIA**

Threshold criteria for determining whether a project is potentially at risk with respect to fault rupture is its location within any of the following areas:

- 1) A State of California designated Alquist-Priolo Special Fault Study Zone,
- 2) A county designated Fault Hazard Area,
- 3) A county designated Potential Fault Hazard Area.

#### ***ASSESSMENT OF GROUND SHAKING***

##### **DEFINITION OF SEISMIC HAZARD**

Ground shaking (i.e. cyclic earth movements) results from the sudden motions in the earth (earthquake) caused by the abrupt release of slowly accumulated strain energy. Earthquakes occur primarily along faults or folds in areas undergoing active deformation. The motion of each earthquake is characterized by a unique set of body, longitudinal, and transverse waves. These waves can cause damage to structures, utilities and transportation corridors; cause landslides, rockfalls and embankment failures and induce liquefaction failure in certain cohesionless soils.

#### **THRESHOLD CRITERIA**

Ground shaking hazards can occur throughout the county and, ground failure phenomena aside, are accommodated by the building code. The effects of ground shaking hazard are required to be considered within the existing framework of grading and building codes that apply to all sites and projects. Special threshold criteria for ground shaking hazard are thus not established. Failure to comply with the earthquake standards of the building code would be considered a significant impact.

#### ***ASSESSMENT OF LIQUEFACTION***

##### **DEFINITION OF LIQUEFACTION**

Liquefaction is the phenomena whereby strong, cyclic ground motions during an earthquake transform a soil mass from a solid to a liquid state. The process involves densification and pore pressure increases in a saturated soil mass. The occurrence of liquefaction is strongly dependent upon the strength and duration of ground shaking, the depth to saturated soil, and local soil properties. It most readily occurs in loose, Holocene-age soil with a near-surface groundwater table. Five types of ground failure are commonly associated with liquefaction: 1) loss of bearing, 2) flow failure, 3) lateral spreading, 4) ground oscillation, and 5) sand boils.

#### **OTHER DEFINITIONS**

*Loss of Bearing:* Liquefied ("Quick") soil has no internal shear resistance and ability to support load without deformation. Bearing failures can result in general settlements, tipping or toppling of buildings and the buoyant rise of empty buried tanks. This is the least common type of failure caused by liquefaction.

*Flow Failure:* This occurs where liquefied soil is present on an original slope usually greater than 3%. Liquefied soil and blocks of solid ground are often displaced many tens of feet at speeds up to several tens of miles per hour and can produce catastrophic effects.

Almost all man-made structures are susceptible to damage by flow slides.

*Lateral Spreads:* These commonly develop adjacent to channels and river banks on slopes between 0.3 and 3%. Movements commonly are several feet, although displacements up to ten feet are possible. Solid blocks slide on a liquefied strata. Facilities with shallow foundations, and particularly pipelines, are susceptible to destruction by lateral spreading. More damage has been caused by lateral spreading than by any other form of liquefaction-induced ground fails.

*Ground Oscillation:* Ground oscillation can occur if liquefied layer is present at depth and the slope is gentle for flow failure or lateral spreading. Ground may open and close, settlement can occur and sand boils may be present. Overlying structures and particularly sub-grade facilities are commonly damaged through this mode of ground failure.

*Sand Boils:* These features are geyser-like eruptions of sand and water that result from soil liquefaction and may last from a few seconds to a minute or more. The geysers can be several feet in height and leave circular deposits of sand a few inches thick around a vent. They result from lateral confined liquefied soil at depth releasing excess pore water pressure.

#### **THRESHOLD CRITERIA**

Liquefaction-susceptible areas are represented on geologic hazard maps in various scales and are contained in reports published by the State of California, Division Mines and Geology and the U.S. Geological Survey.

Liquefaction hazards can occur throughout the area and are accommodated by the building code. The effects of liquefaction hazards are required to be considered within the existing framework of grading and building codes that apply to all sites and projects. Special threshold criteria for liquefaction hazard are thus not established. Failure to comply with the earthquake and soil standards of the building code would be considered a significant impact.

#### ***ASSESSMENT OF LANDSLIDE/MUDFLOW***

##### **DEFINITION OF LANDSLIDE/MUDFLOW**

Landslide and mud flow are terms to designate certain forms of natural or man-induced slope instability that may adversely influence life or property. Included are a number of different processes that range from very slow (a few inches in a hundred years) to extremely rapid (70 or more miles per hour). Included within the definition of this hazard, for the purposes of conducting environmental assessments, are all gravity-induced down-slope movements including the separate phenomena of rock-fall, soil creep, soil failures, dry raveling, rotational and transitional slides, flows, slumps and complex combinations of the above phenomena. The hazard applies to both natural and constructed slopes. Contributing factors include erosion, earthquake ground shaking, brush fires, and groundwater.

#### **THRESHOLD CRITERIA**

Landslide/mudflow hazards generally exist in and at the base of hillside terrain where channel erosion, weathering and tectonic movement have caused unstable conditions. Actual movement may be triggered by earthquakes and/or heavy periods of rain. A particular threat of landslide/mudflow exists in all areas that have already experienced mass movement and in areas subject to changes in topography and moisture content. This basically includes all hillside areas with slopes greater than 10%.

Location of a development project within an area identified as a landslide/mudflow hazard area would indicate a potential “significant” impact. The effects of landslide and mudflow hazards are required to be considered within the existing framework of grading and building codes that apply to all sites and projects. Special threshold criteria for landslide and mudflow hazard are thus not established. Failure to comply with the soil standards or other requirements of the building code, state law and other applicable development regulations relative to construction practices in an identified landslide/mudflow hazard area would be considered a significant impact.

#### ***ASSESSMENT OF EROSION/SILTATION***

##### **DEFINITION OF EROSION/SILTATION**

The wearing away or deposition of land surface by wind or water. Erosion occurs naturally from weather or runoff, but can be intensified by land clearing practices.

#### **THRESHOLD CRITERIA**

Erosion/Siltation hazards exist throughout the county and are accommodated by the development standards and other construction regulations. Erosion/siltation hazard are required to be considered within the existing framework of grading and building code ordinances which apply to all sites and projects. Special threshold criteria for erosion/siltation hazards are thus not established. A determination of significant impact will be made for erosion and/or sediment producing projects not covered by the ordinary provisions of the building code, or other applicable development standards.

#### ***ASSESSMENT OF SUBSIDENCE***

##### **DEFINITION OF SUBSIDENCE**

Subsidence is a general term for the slow, long-term regional lowering of the ground surface with respect to sea level. It can be caused by natural forces such as the consolidation of recently deposited sediments or by man-induced changes such as the dewatering of an aquifer. Subsidence occurs as a gradual change over a considerable distance (miles), or less commonly, it can occur in discrete zones. Subsidence is in contrast to “settlement”, a term used to describe site-specific consolidation of strata from an imposed load such as a landfill or from some other man-caused increase in the effective stress conditions of subsurface earth materials.

Utilities and drainage facilities are particularly affected by subsidence due to their lateral extent, but small projects may also be affected when they are placed in an area that has discrete zones of subsidence or where subsidence will cause a secondary effect such as ponding or flooding.

#### **THRESHOLD CRITERIA**

Location of a development project within an area identified as a subsidence hazard area would indicate a potential “significant” impact. The effects of subsidence hazards are required to be considered within the existing framework of grading and building codes that apply to all sites and projects. Failure to comply with the soil standards or other requirements of the building code, state law and other applicable development regulations relative to construction practices in an identified subsidence hazard area would be considered a significant impact.

The creation of a subsidence hazard is related to project type and would most likely be related to a project that would substantially reduce ground-water levels. These types of impacts would be evaluated under the heading of Hydrology and Water Quality.

#### ***ASSESSMENT OF EXPANSIVE SOILS***

##### **DEFINITION OF EXPANSIVE SOILS:**

Expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. The resultant shrinking and swelling of soils can influence all fixed structures, utilities and roadways. Included within the definition of expansive soils are certain bedrock formations with expansive rock strata and weathered horizons.

#### **THRESHOLD CRITERIA**

Expansive soils are present throughout the area. They are present in some areas in thick accumulations and in others as a thin cover. Expansive soil hazards are assessed and mitigated within the existing regulatory framework of both the Public Works Department and the Building Department as a normal part of the construction planning and development review process. An expansive soil hazard is considered to exist where soils with an expansion index greater than 20 are present.

Location of a development project within an area identified as a expansive soil hazard area would indicate a potential “significant” impact. The effects of expansive soil hazards are required to be considered within the existing framework of grading and building codes that apply to all sites and projects. Failure to comply with the soil standards or other requirements of the building code, state law and other applicable development regulations relative to construction practices in an identified expansive soil hazard area would be considered a significant impact.

#### ***B. Potential Significant Impacts:***

##### ***Geology and Soils Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city’s general plan implementation, the following aspects of a potential geology and soils impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Result in substantial soil erosion or loss of topsoil?*



Although all soil types located in the city are classified as having low to moderate erosion hazards, improper practices can still lead to substantial wind and water erosion. Soil erosion from water is minimal due to the relatively flat terrain of the area. Soil can also be lost in wind erosion if precautions are not taken. Dust blown off the proposed project site would not only create a nuisance and create problems with air quality compliance, but can cause impacts down wind to items such as machinery and bodies of water.

Wind erosion is primarily a concern during construction activities, but measures can be taken to reduce the amount of wind erosion that occurs during development grading and excavation. Typically, erosion control and dust control (PM<sub>10</sub>) measures are applied to development permits during the building permit phase.

- *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

While a portion of the bluff area, along the southwestern edge of the city bordering the Tuolumne River, is not stabilized, the policies and programs that are in place to limit urban encroachment into this area reduces risk to a less than significant level.

- *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Concentrations of expansive soils are known to exist in the developable areas of the city and its urban expansion area. Implementation of the Uniform Building Code reduces the risk of buildings or structures on expansive soils to a less than significant level.

*Geology and Soils Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, potential geology and soils impacts that are likely to result in a significant adverse environmental impact due to project implementation are described below.

- *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*
  - i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*
  - ii) *Strong seismic ground shaking?*
  - iii) *Seismic-related ground failure, including liquefaction?*
  - iv) *Landslides?*

The city of Waterford, and its future urban expansion areas, are not likely to expose people or structures to substantial adverse geologic risks from earthquake fault or rupture, strong seismic ground shaking, seismic-related ground failure or landslides. Steep bluff areas along the Tuolumne River and Dry Creek are subject to landslide hazard that could become very hazardous during periods of high precipitation combined with an earthquake event. Structures located along the top of these steep bluff lines could become unstable. This conclusion is based on the geologic data collected and analyzed in the Stanislaus County General Plan and elsewhere.

***C. Proposed General Plan Goals & Policies:***

There are no general plan policies that directly relate to the geology and soils within or underlying the city's urban area. There are several policies, however, that have an indirect impact on geology and soils from the perspective of the built environment. The Safety Chapter of the general plan addresses the issues of development in areas that contain unstable soils and/or exhibit hazardous geologic conditions.

The Waterford General Plan contains policies and goals that aim to preserve biological resources of the city. There are policies in the Land Use, Sustainable Development and Urban Design chapters of the general plan that, while not directly aimed toward biological resource preservation, have the effect of preserving and protecting the city's waterways and riparian corridors that contain many of the city's biological assets. The Urban Expansion and Open Space Conservation chapters of the general plan contain specific goals and policies for the preservation and enhancement of the city's biological resources.

**Overall Goals for Geology and Soils**

***Goal Area- Urban Expansion (UE)***

**UE-A Compact Urban Form**

**Policies**

**UE-2** Designate areas for new urban development which reflect the physical characteristics and environmental constraints of the planning area.

**UE-3** The city shall accommodate urban development on non-prime soils whenever feasible.

***Goal Area- Open Space-Conservation (OS-C)***

**OS-Safe Environment For Waterford's Citizens**

**OS-Preserve and Protect Soil Resources**

**Policies**

**OS-D.1** Preserve open space areas which are necessary to maintaining public health and safety.

**OS-E.2** Protect soil resources from the erosive forces of wind and water.

***Goal Area- Safety (S)***

**S-General Disaster Preparedness**

**S-Reasonable Safety for city Residents from the Hazards of Earthquake and Other  
Geologic Activity**

**Policies**

- S-2.1** Reduce the potential danger from earthquake and seismic-related activity from existing buildings where necessary.
- S-2.2** Encourage the improvement of all public facilities and infrastructure such as natural gas, fuel, sewer, water, electrical, lines and equipment with up-to-date seismic safety features.
- S-2.3** Restrict urban development in all areas with potential ground failure characteristics.

***Federal Geology and Soils Regulations***

Non-point source pollution from sediment is regulated under the National Pollution Discharge Elimination System (NPDES) requirements. EPA has delegated authority to the State Water Resources Control Board (SWRCB) to administer the NPDES program. The general permit is enforced by one of the nine RWQCBs. A project that would result in the disturbance of more than 5 acres of land must obtain coverage under the state's general permit for construction activities. Development of a SWPPP (which includes erosion and sediment control measures) is required to obtain coverage under the general permit. A SWPPP for each project that exceeds the one-acre disturbance threshold would be prepared and implemented.

***D. Short-Term Impacts:***

Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning standards, that will be utilized in the review of development proposals and to regulate normal land uses. These actions and regulations will not have any adverse impacts on soils and geology of the area but will lead to improved regulation of development with respect to potential development proposed on unstable soils or underlying geologic structure.

***E. Long-Term Impacts:***

Growth and development within the urban area of the city will result in some modifications to the natural setting which presently is used for agriculture and non-intensive agriculture and open space activities. Long-term development trends will increase urban uses that will be more intensive but are likely to involve less earth disturbance than normal agricultural practices after development and construction activities have been terminated. Urban development will minimize soil loss potential caused by wind erosion on cultivated farm lands. Water erosion will be managed through the development of surface water drainage systems that channel storm water into pipelines and other erosion proof structures. With the exception of the bluffs along the Tuolumne River and Dry Creek, there are no serious geologic problems in the region and long term impacts from unstable geology are of little concern and can be easily addressed through the proper application of building code standards.

***F. Cumulative Impacts:***

Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. These changes will have little impact overall on the capacity of the geology and soils of the area and these soils and the underlying geologic structure of the region will support the type of development that is likely to occur.

***G. Secondary Impacts:***

As a result of these construction policy and regulatory standards, it is expected that there will be an increase in the cost of construction and development on sites that contain certain types of soils. These costs will be uniform within the region and the state and are not expected to be significant in most cases, nor will they create any substantial adverse economic impact that would hamper normal growth and development within the city.

***3.7.3 Mitigation Measures***

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As part of the city's development review program, individual development projects are typically required to prepare foundation soils reports to evaluate the project site's soil stability. As a result of these studies, specific project level mitigation measures are required as part of the project's conditions of approval. In addition National Pollution Discharge Elimination System permits address the issue of erosion.

No mitigation is proposed or required as there are no significant adverse impacts likely to result from the adoption and implementation of the City of Waterford General Plan Update.

***3.7.4 Level of Significance After Mitigation***

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Projects that are undertaken in a manner that is consistent with the policies and standards of the City of Waterford General Plan, and comply with all appropriate state and local Uniform Building Code (UBC) construction regulations, will not result in the creation of a significant adverse physical impact from unstable soils or earth conditions in the city.

## ***Section 3.8***

### ***Hazards and Hazardous Materials***

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This environmental issue focuses on the impacts of a project with respect to hazards. The creation of new hazardous conditions or activities that will result in people or property being exposed to existing hazards is the primary area of focus under this environmental issue. Hazards include, but are not limited to, hazardous materials, hazards associated with aircraft and airports or wildland fires. An additional concern is the consistency of a project with emergency response plans or emergency evacuation plans.

#### ***3.8.1 Environmental Setting***

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##### ***Regulatory Environment***

California's economic well-being and quality of life depend in many ways on the production and use of manufactured goods. However, manufacturing often requires large volumes of chemicals and generates hazardous waste. Hazardous waste ranges from familiar substances, such as solvents and waste oil, to sophisticated compounds such as polychlorinated biphenyls and dioxins. More than 10 million tons of hazardous waste are generated in California each year.

In 1986, the California legislature passed legislation requiring each county to develop a hazardous waste management plan and requiring all cities to either adopt the county plan by reference in their general plans or adopt their own plan. The Stanislaus County Board of Supervisors has adopted the Stanislaus County Hazardous Waste Management Plan. The plan addresses waste reduction and onsite treatment, the siting of off-site hazardous waste facilities, public and industry education, transportation of hazardous wastes, cleanup of contaminated sites, and emergency response procedures. The plan also recommends a series of goals, policies, and implementation actions to deal with hazardous waste throughout the county.

The Stanislaus County Environmental Health Division, which oversees the enforcement of the plan, maintains an up-to-date list of known hazardous waste sites within the county. Cleanup of sites that exceed state standards for contamination by toxic materials is required prior to development or reuse of the site. The State Department of Health Services monitors the cleanup process.

The Stanislaus County Fire Department and Environmental Health Division work with the county to prevent the uncontrolled release of toxic substances into the environment by conducting inspections of toxic materials facilities, enforcing storage and use requirements, and educating local businesses on proper storage and handling of hazardous materials. The fire department responds to uncontrolled releases within the city limits, identifies the category of chemicals involved, contains the spill if possible, oversees cleanup activities, and makes sure that the site is safe to be occupied again.

The county Hazardous Waste Management Plan deals with detailed emergency response procedures under various conditions for hazardous materials spills. The city also works

with the State Department of Health Services to establish cleanup plans and to monitor the cleanup of known hazardous waste sites within the city.

The Uniform Building Code (UBC) and the Uniform Fire Code (UFC) work together as companion documents to regulate building construction and related items such as the care of vacant lots and the storage of flammable liquids. Generally, the UBC regulates new construction and the UFC covers the maintenance of the construction. Each year the Fire Prevention Bureau and engine companies conduct inspections and eliminate Uniform Fire Code violations that could contribute to the cause and severity of a fire. The inspection program primarily targets the high and medium hazard occupancies.

### ***Hazardous Sites***

One source of information on hazardous materials in the city of Waterford Planning Area can be found in the central Valley RWQCB's Site Cleanup and Leaking Underground Storage Tank lists (State Water Resources Control Board 2001). These lists, updated quarterly, identify sites by name and street address, identify the pollutants of concern, and identify the agency overseeing cleanup activities.

Hazardous substances include both hazardous wastes and hazardous materials. In general, a material or waste is classified as hazardous if it is one of more than 700 chemicals specifically listed in the California Code of Regulations; if it contains one of these chemicals; or if it is reactive, ignitable, corrosive, or toxic. Because of their potential threat to public health and the environment, hazardous substances are closely regulated by federal, state, and local laws that focus on controlling their production, handling, storage, transportation, and disposal.

Federal and state environmental laws provide that all property owners be required to pay for cleanup, when necessary, of contamination by hazardous materials on or originating from their land. Because of the potential liability, purchasers or developers of commercial, industrial, or agricultural property should perform environmental assessments before development or purchase. In addition to being liable for cleanup, the owner can be responsible for toxic effects on human health, and measures should be taken to avoid exposing people to hazardous materials.

Although there is already a list of sources of hazardous materials in the project area, there may be other sources that have yet to be identified. Gas stations and industrial activities located next to the roadways in the planning areas may have released hazardous materials to the environment. Farms and other agricultural activities may have also released hazardous materials to the environment. To determine the full extent of possible hazardous materials sources, Phase I and Phase II hazardous materials site assessments would need to be completed for suspect parcels in and adjacent to specific project areas. These assessments are beyond the scope of this program-level analysis.

The first step in identifying sources of hazardous materials is to conduct a database search of federal, state, and local agency records. A database search is the principle source of information to verify the presence of hazardous materials/wastes in the

Waterford urban planning area. The results of these searches include lists of sites with known, potential, or existing hazardous materials in a specified search area. Individual sites can occur on several lists for the same reason and are sometimes repeated under different names on the same list.

A summary of the databases that should be searched is presented below. Lists such as the National Priorities List of Superfund Sites (NPL), the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), Annual Workplan (AWP), the CAL-SITES Database, Cortese, the Toxic Pit List, and the aforementioned Leaking Underground Storage Tank list indicate sites with known soil and/or groundwater contamination or high potential for contamination.

### ***Emergency Operations Plan***

The City of Waterford has adopted an *Emergency Operations Plan*. This Plan accomplishes the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the city of Waterford,
- Identifies the policies, responsibilities and procedures required to protect the health and safety of the city of Waterford, public and private property and the environmental effects of natural and technological emergencies and disasters,
- Establishes the operation concepts and procedures associated with Initial Response Operations (field response) to emergencies, the Extended Response Operations (city and county Emergency Operations Center (EOC) activities) and the recovery process.

The *Waterford Emergency Operations Plan* is prepared and maintained in accordance with federal and state law and periodically is reviewed and updated to reflect changes in circumstances with respect to disaster relieve, response and clean-up procedures.

The purpose of the *Emergency Operations Plan* is to provide emergency planning/organization and response. The document deals with emergency management, law enforcement, traffic control, fire, medical, rescue, radiological material, and shelter.

The Construction and Engineering section deals basically with emergency repairs, route recovery, and post-event inspection of facilities; and the Movement section deals with evacuation procedures. The plan is designed to prepare the community for responding to an emergency situation in a highly organized and efficient way so that chaotic situations are avoided.

### ***Emergency Evacuation Routes***

Earthquakes, fires, and flooding are all hazards that require planned evacuation routes to move residents to safer ground. For the most part, Highway 132 would be used for evacuation. However, alternative routes, such as the Oakdale-Waterford Highway are available for emergency evacuation of the city and its surrounding environs.

Intra-city routes would be regulated by the California Highway Patrol in conjunction with county sheriff and city police. For more detailed information on evacuation routes see the Stanislaus County General Plan. The city endorses and abides by the Office of Emergency Services "Multi-Hazard Functional Plan" as amended.

### ***Wildland Fires***

Wildland fires occur from a combination of climatic, vegetative and physiographic conditions and have the potential to cause loss of life and property damage. Wildland fire hazards exist in varying degrees throughout Stanislaus County, mostly outside urban areas. The Valley's long, dry summers and extensive vegetation makes for a fire season that extends from late spring to early fall. Irrigated agricultural land, however, is less susceptible to wildland fires than grazing areas.

### ***3.8.2 Environmental Impacts***

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As a result of policies of the general plan update, uses and activities may be proposed or undertaken within the city of Waterford that could result in the use of hazardous materials or create a hazardous condition within the city. Some man-made improvements could result in hazardous conditions within the city's urban center.

#### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Hazards & Hazardous Materials as follows:

#### ***Would the project:***

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?



## ***ASSESSMENT OF HAZARDOUS MATERIALS***

### **DEFINITION OF HAZARDOUS MATERIAL**

A hazardous material, which because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- a) Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or
- b) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

A hazardous material also includes any of the criteria for the identification of a hazardous waste adopted by the State Department of Health Services pursuant to Section 25141, Division 20, Chapter 6.5 of the California Health and Safety Code. Hazardous waste includes, but is not limited to, Resource Conservation and Recovery Act (RCRA) hazardous waste. Unless expressly provided otherwise, the term hazardous waste shall be understood to also include extremely hazardous waste and acutely hazardous waste.

### **DEFINITION OF TERMS**

*Underground Storage Tanks (UST)* Any one or combination of tanks, including pipes connected thereto, which are used for the storage of hazardous substances as defined in the California Health and Safety Code, Division 20, Chapter 6.7, and which are substantially or totally beneath the surface of the ground.

Underground Storage Tank does not include any of the following:

1. A tank with a capacity of 1,100 gallons or less which is located on a farm and which stores motor vehicle fuel used primarily for agricultural purposes and not for resale.
2. A tank which is located on a farm or at the residence of a person, which has a capacity of 1,100 gallons or less, and which stores home heating oil for consumptive use on the premises where stored.
3. Structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation swaps, lined and unlined pits, sumps and lagoons. Sumps which are a part of a monitoring system required under Section 25291 or 24292 and sumps or other structures defined as underground storage tanks under the federal act are not exempted by this section. Structures identified in this paragraph may be regulated by the board and any regional board pursuant to the Porter-Cologne Water Quality Control Act (Division 7 [commencing with Section 13000] of the Water Code) to ensure that they do not pose a threat to water quality.

*Pipeline* - means any pipeline or system of pipelines which is used in connection with the storage of hazardous substances and which is not intended to transport hazardous substances in interstate or intrastate commerce or to transfer hazardous materials in bulk.

*Existing Underground Storage Tank* - means any underground storage tank that is not a new underground storage tank. The term includes any underground storage tank which has contained a hazardous substance in the past and, as of January 1, 1984, had the physical capability of being used again (i.e., it had not been removed or completely filled with an inert solid).

NOTE: For a more complete list of definitions, the reader is directed to California Health and Safety Code, Division 20, Chapter 6.5.

#### **THRESHOLD CRITERIA**

The storage, handling and disposal of potentially hazardous material shall be in conformance with the requirements set forth in the following regulations:

- Enabling Legislation California Administrative Code (CAC), Title 22, Division 4, Chapter 30.
- California Health and Safety Code, Division 20, Chapter 6.5.
- California Health and Safety Code, Division 20, Chapter 6.7 (Underground Storage of Hazardous Substances) and the California Code of Regulations Title 23, Chapter 3, Subchapter 26 (California Underground Storage Tank Regulations).
- Local county Permit Requirements, (Hazardous Substances), (Hazardous Wastes Producers).

The above state legislation and local ordinances have been enacted for the purpose of preventing contamination from, and improper storage, handling and disposal of, hazardous wastes. It is the intent of these regulations to establish procedures that will ensure that the generators of hazardous wastes employ technology, and destruction of their hazardous wastes prior to disposal.

#### ***ASSESSMENT OF AVIATION HAZARDS***

##### **DEFINITION OF ISSUE:**

*Aviation hazard* is defined as the potential loss of life and/or property due to an aircraft accident. It is further defined as anything or act which increases, or may cause to increase, the hazard or risk of aircraft accidents to a greater degree than that which may occur characteristically as the result of mechanical failure, pilot error or inclement weather.

Incompatible land uses near airports include those associated with residential development, retail centers with high density uses, schools, churches, refineries and mobile home parks. The purpose of establishing land use restrictions in safety zones around an airport is to minimize the number of people exposed to aircraft crash hazards and unwanted aircraft generated noise. To achieve those objectives, decision-makers must limit the number of persons in an area and limit the area covered by structures occupied by people. Each additional person in an area near an airport becomes subject to a certain crash hazard risk by virtue of being located in the airport sphere of influence.

**THRESHOLD CRITERIA:**

A review of aviation hazards, as those hazards relate to proposed development of properties near private or public airports, will focus on compliance with the Comprehensive Land Use Plan and pre-established federal criteria set forth in Federal Aviation Regulation Part 77 (Obstruction Standards), as well as those recommendations for good land-use planning made by state and county government agencies. Special attention should be given to all residential development within two (2) miles of either type of airport, as well as churches, schools and high commercial purpose buildings to be located within the same sphere of influence.

***ASSESSMENT OF IMPACTS ON EMERGENCY RESPONSE PLANS***

**DEFINITION OF ISSUE**

An Emergency Response Plan is a plan for a community, regional or state response to an emergency resulting from a natural or man-made disaster.

**THRESHOLD CRITERIA**

Any project that is inconsistent with an Emergency Response Plan, or creates obstacles to the orderly public agency response to a natural or man-made disaster is considered to have a significant impact.

***ASSESSMENT OF WILDLAND FIRE HAZARDS***

**DEFINITION OF ISSUE:**

Wildland fire hazard is defined as the potential loss of life and/or property due to fire in a rural or non-urbanized area designed as a Wildland Fire Hazard Area by the California Department of Forestry. Uniform Building Code identifies high fire hazard areas as any area within 500 feet of uncultivated brush, grass, or forest covered land wherein an authorized representative of the fire department or county fire marshall determines that a potential fire hazard exists due to the presence of such flammable growth.

**THRESHOLD CRITERIA**

A project will have a significant adverse wildland fire impact when located within:

- A Wildland Fire Hazard area and does not comply with California Department of Forestry regulations and standards and/or
- An area addressed in the Uniform Building Code building and safety requirements for structures and does not comply with UBC and Uniform Fire Code regulations and standards and/or
- An area subject to any local weed abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within minimum distance of structures or buildings and does not comply with those standards.

***B. Potential Significant Impacts:***

***Hazards and Hazardous Materials Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential hazards and hazardous

materials impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Adoption and implementation of the general plan will not result in the routine transport, use or disposal of hazardous materials that would be in violation of any federal, state or local standard established for the safe handling, transport and disposal of hazardous materials.

- *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Adoption and implementation of the general plan will not result in any reasonably foreseeable upset or accident condition involving the release of hazardous materials into the environment in violation of any federal, state or local standard established for the safe management and containment of hazardous materials.

- *Emit hazardous emission or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Adoption and implementation of the general plan will not result in the handling or emission of hazardous materials within one-quarter mile of an existing or proposed school facility that would be in violation of any federal, state or local standard established for the safe handling, transport and disposal of hazardous materials.

- *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

The city and its expansion area contain several identified hazardous sites, most involving underground storage tanks. All of these sites are within the built urban environment of the city and are under the management of the Stanislaus County Department Environmental Resources in compliance with the environmental health laws of the state of California. These sites are managed under state regulations to assure that they do not create a significant hazard to the public or the environment.

- *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

The city and the area surrounding the city and its growth area do not contain any airports or airstrips.

- *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

The city and the area surrounding the city and its growth area, do not contain any private airports or airstrips.

- *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Adoption and implementation of the general plan will not result in the impairment of the implementation of any emergency response plan. The general plan will provide one of the key implementation strategies for designing emergency evacuation plan for the city and region through the designation of the city's street system in accordance with the Functional Classification System.

- *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

The unincorporated and/or undeveloped areas adjacent to the city of Waterford's urban planning area are predominantly irrigated cropland. As the city annexes rural areas, agricultural management practices sometimes result in weeds and grasses to grow in such a manner as to create a fire hazard. Wildland fire hazards are reduced by enforcement of city building and fire codes, use of green belting, prescription burning to control fuel load, weed abatement, and implementation of other fire safe practices. As a result, the wildland fire hazards in or near the city of Waterford are minimal.

*Hazards and Hazardous Materials Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential hazards and hazardous materials impact are expected to result in a significant adverse environmental impact due to project implementation:

***C. Proposed General Plan Goals & Policies:***

The Safety Chapter of the Waterford General Plan contains the following goals and policies regarding hazards:

***Goal Area - General Disaster Preparedness***

***Policy***

- ***S-1.1*** Develop and maintain emergency preparedness procedures for the city.

***Goal Area- Fire and Hazardous Material Safety for the Residents of the city and For Those Working in Fire Suppression***

**Policy**

- **S-6.1** Prevent injuries and environmental contamination due to the uncontrolled release of hazardous materials.

**Goal Area- Hazardous Materials Safety for city Residents**

**Policy**

- **S-6.2** Ensure that hazardous materials are cleaned up before a property is developed or redeveloped.

***Other Hazardous Materials Regulations***

California regulations governing hazardous materials are, at least, as stringent as federal regulations. The state has been granted primacy (primary responsibility for oversight) by EPA to administer and enforce hazardous waste management programs. State regulations also have detailed planning and management requirements to ensure that hazardous materials are properly handled, stored, and disposed of to reduce human health risks. California regulations pertaining to hazardous waste management are published in the CCR, previously called the California Administrative Code. Title 26, administered by Cal-EPA, is the largest state code and incorporates all the regulations that deal with toxic materials from other titles.

**Relevant Plans, Policies, and Regulations**

***Federal Hazards Regulations***

Resource Conservation and Recovery Act. The Resource Conservation and Recovery Act (RCRA) of 1976 (substantially amended in 1984), administered by EPA, is the principal federal legislation regulating hazardous waste. RCRA imposes reporting, permitting, and operation control requirements on those who generate, treat, store, or dispose of hazardous materials or hazardous waste. RCRA is implemented by Title 40 of the CFR. The recent amendments to this act involve stringent monitoring of landfills and regulation of underground storage tanks for hazardous materials and hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act. In response to cleaning up pre-RCRA hazardous waste sites, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980 (commonly referred to as “Superfund”). Consequently, abandoned hazardous waste sites had to be inspected and cleaned up, and the waste had to be properly disposed. Superfund Amendments and Reauthorization Act The risk to those exposed to hazardous waste as a result of RCRA and CERCLA was addressed in the Superfund Amendments and Reauthorization Act (SARA) of 1986. As a result of SARA, the federal Occupational Safety and Health Administration (OSHA) published hazardous waste clean-up regulations in Section 29 CFR 1910.120.

Federally Reported Environmental Data National Priorities List of Superfund Sites The NPL is EPA’s database of more than 1,200 sites designated for priority cleanup under the Superfund program. NPL sites may encompass relatively large areas.

Resource Conservation and Recovery Information System (RCRIS)

The RCRIS is an EPA database that includes selective information on sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. Identification on this list does not indicate that there has been an impact on the environment.

Comprehensive Environmental Response, Compensation and Liability Information System

CERCLIS is an EPA database that contains information on potential hazardous waste sites that have been reported to EPA by states, municipalities, private companies, and individuals, pursuant to Section 103 of CERCLA. CERCLIS contains sites that are either proposed for or on the NPL, as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.

Corrective Action Report (CORRACTS) CORRACTS is an EPA database that identifies hazardous waste handlers with RCRA corrective action activity.

RCRA Administrative Action Tracking System (RAATS) RAATS is an EPA database that contains records based on enforcement actions issued under RCRA pertaining to major violators, and includes administrative and civil actions brought by EPA.

PCB Activity Database System (PADS) PADS is an EPA database that identifies generators, transporters, commercial storers, and/or brokers and disposers of polychlorinated biphenyls (PCBs) who are required to notify EPA of such activities.

***D. Short-Term Impacts:***

Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning standards, that will be utilized in the review of development proposals and to regulate normal land uses. These actions and regulations will not have any adverse impacts on the hazard environment of the area but will lead to improved regulation of development with respect to potential hazards and hazardous materials impacts.

***E. Long-Term Impacts:***

Growth and development within the urban area of the city will result in urban activities that will involve the storage and handling of hazardous materials that could expose people or property to a hazard. The regulatory environment, which involves federal, state and local regulations and standards, is based on scientific based risk assessment standards and implemented to minimize the hazard risks that may occur.

***F. Cumulative Impacts:***

Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. Agricultural chemicals, including fertilizer, pesticides and herbicides will no longer be applied in the manner that they are normally used in a commercial agricultural operation. New development, along with the use of household chemicals, and landscape maintenance, will replace traditional agricultural activities.

***G. Secondary Impacts:***

As a result of regulatory standards for hazardous materials, it is expected that there will be an increase in the cost of construction and development on sites that contain hazardous materials or for businesses that use, store or handle such materials. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city.

***3.8.3 Mitigation Measures***

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As part of the city's development review program, individual development projects are typically required to prepare hazards studies to evaluate the project potential for containing hazardous materials. As a result of these studies, specific project level mitigation measures may be required as part of the project's conditions of approval. Other special state and federal regulations regulate the storage, use and management of hazardous materials to a degree that it is highly unlikely that new risks are created. No mitigation is proposed or required as there are no significant adverse impacts likely to result from the adoption and implementation of the City of Waterford General Plan Update.

***3.8.4 Level of Significance After Mitigation***

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Projects that are undertaken in a manner that is consistent with the policies and standards of the City of Waterford General Plan, and that comply with all appropriate federal, state and local Uniform Building Code (UBC) construction, Uniform Fire Code (UFC), OSHA or State Department of Health Services regulations, will not result in the creation of a significance adverse physical impact from hazardous conditions in the city.



## ***Section 3.9***

### ***Hydrology and Water Quality***

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This environmental issue focuses on the impacts of a project on surface and groundwater, including compliance with water quality standards and regulation, depletion of groundwater supplies, pollution or degradation of water quality. Additional concerns include water related hazards such as flooding, mudflows and similar hazards. This area of environmental concern also addresses potential project impacts on area drainage, including storm water runoff.

#### ***3.9 1 Environmental Setting***

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##### ***General:***

Future growth in Waterford will mean a greater water demand for urban uses, although with the conversion of agricultural land less water will be utilized for irrigation within the Sphere of Influence. In response to growth that was occurring in and around the Planning Area, the City of Waterford commissioned a series of planning and engineering studies to address groundwater and drainage needs.

These studies include the *Waterford 2005 Urban Water Management Plan*, *City of Waterford Water Master Plan*, *City of Waterford Drainage Master Plan* and the *City of Waterford Wastewater Master Plan*. These Plans are incorporated by reference and available for review at Waterford City Hall. The reports address drainage, wastewater, water demand and supply analysis, and system improvements. These Plans are dynamic documents and will be revised, updated and amended from time to time to reflect updated information and or technology.

There are two significant surface water features surrounding the Planning Area – the Tuolumne River and Dry Creek. The Tuolumne River flows from east to west along the southern boundary of the Planning Area and the current city limits. Dry Creek also flows from east to west and is just north of the northern boundary of the new Planning Area. Much of the Planning Area drains southerly to the Tuolumne River.

The general plan study area lies within the Tuolumne River drainage in Stanislaus County and extends from the Don Pedro Reservoir to the confluence of the Tuolumne and San Joaquin rivers.

In terms of climate and precipitation, Waterford can be characterized as semi-arid which is typical of the San Joaquin Valley. The valley is protected from moist oceanic and continental fronts by surrounding coastal and inland mountain ranges. Annual rainfall, most of which takes place during the fall and winter averages approximately 12.42 inches.

Summers are typically long, dry and hot with mid-day temperatures often exceeding 100 degrees Fahrenheit. Cool temperatures, fog and intermediate light rain characterize winter months. January is the coldest month with an average minimum temperature of 37.7

degrees Fahrenheit. July is the hottest month with an average minimum temperature of 94.1 degrees.

***Regulatory Environment:***

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act of 1969 (Water Code, Section 13000 et seq.) established the State Water Resources Control Board (SWRCB), divided the state into nine hydrographic basins, and established a Regional Water Quality Control Board (RWQCB) for each basin. The act requires the SWRCB or RWQCBs to adopt water quality control plans for protecting water quality.

The SWRCB is the primary state agency responsible for formulating policies to protect the state's surface waters and groundwater supplies and it approves water quality control plans (basin plans) prepared by each RWQCB. The United States Environmental Protection Agency (EPA) has granted California primacy in administering and enforcing provisions of the federal Clean Water Act (CWA) and the National Pollution Discharge Elimination System (NPDES). The NPDES is the primary national program that regulates point-source and non-point source discharges to surface waters. Each RWQCB has developed basin plans for its region that identify important regional water resources and beneficial uses and that provide for the prevention and abatement of waste pollution and nuisance. The central Valley Basin Plan contains water quality standards and objectives that are applicable to wastewater discharges to water bodies in the Waterford area, including the Tuolumne River and Dry Creek.

***Storm-Water Discharges:***

As part of revisions to the CWA in 1987, EPA issued requirements for storm water discharges associated with construction activity to obtain an NPDES General Construction Activity Permit. This general permit requires developers of projects equal to or greater than 5 acres to file a notice of intent, develop and implement a storm water pollution prevention plan, and conduct site inspections for facilities. The goal of the permit is to reduce or eliminate surface storm water pollution from construction activities. This NPDES permit, which is administered by SWRCB and overseen locally by the Central Valley RWQCB, is separate from the treatment plant discharge permit.

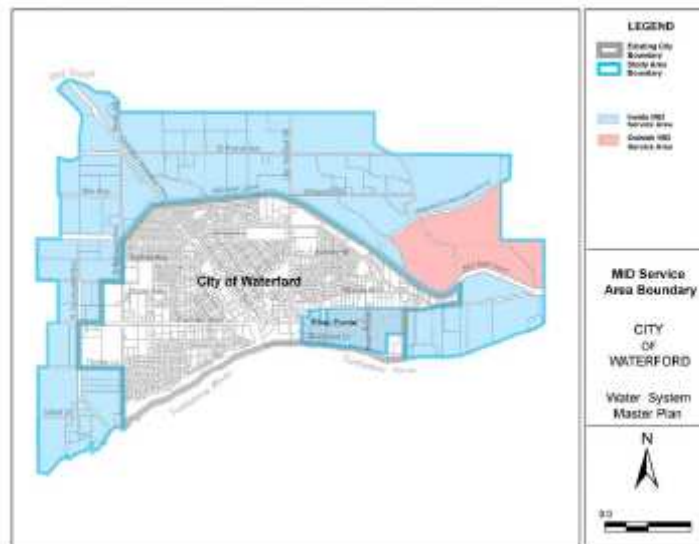
***Surface Water:***

***Regional Surface Water Hydrology***

The Modesto Irrigation District (MID) is the principal surface water supplier in the region. The district supplies approximately 210,000 acre-feet per year of water to its customers. The district's service area covers approximately 160 square miles. The Stanislaus and San Joaquin rivers define the district's service area boundaries on the north and west, the Main Canal and a line parallel and north of Dry Creek define the northeast boundary, and the Tuolumne River defines the southern boundary of the district.

The district system includes Don Pedro Reservoir, La Grange Diversion Dam, Modesto Reservoir, and a extensive canal network. The irrigation season generally extends from March 15 to October 15 and maximum canal flows occur in June and July.

**Figure 3.9.1**  
**Study Area and Modesto Irrigation District Service Area**



#### ***Local Surface Water Hydrology***

There are two distinct types of surface water in the area: the natural surface water that flows through the Tuolumne and Dry Creek drainage systems of the area, and the water associated with the MID canal system that operates in the area. The major source of surface water is the Tuolumne River. The headwaters of the Tuolumne River begin at 13,000 feet in Yosemite National Park in the Sierra Nevada Mountains. Downstream, 150 miles, at the river's mouth, thousands of Chinook salmon return each fall to spawn on the lower river.

The Tuolumne watershed supports many species of wildlife, including bald eagles, spotted owls, prairie falcons, and a healthy wild trout fishery enjoyed by anglers. In addition to providing excellent wildlife habitat and recreational facilities, the Tuolumne River has been extensively developed to deliver water and electricity to San Francisco and other Bay Area cities. The river also provides water for farmers in the central Valley. Five major dams, powerhouses, and reservoirs on the river provide the region with 2.5 billion kilowatts of electricity and storage for 2.6 million acre-feet of water for drinking and irrigation.

#### ***Groundwater***

Ground water studies, commissioned by the City of Modesto, concluded that Modesto could not maintain its growth and rely on ground water sources. The ground water levels under the City had declined over the years contributing to the declining water quality problems of the city. As a result, the City of Modesto worked with the Modesto Irrigation District to develop a surface water supply.

Ground water, in the area, recharges from deep percolation rainfall and irrigation water, seepage from the rivers, underflow from the Sierra Nevada foothills, and upward flow from the formations that underlie the Mehrten Formations. Total average total withdrawals from the groundwater basin is about 313,000 acre-feet per year and the average total recharge, likewise, is about 313,000 acre-feet per year. Overall, the Modesto groundwater basin is in a quasi-equilibrium state according to the *River Ranch Project Evaluation of Groundwater Impacts*.

While groundwater may be in quasi state of equilibrium basin wide, within areas of high ground water withdrawal, there are cones of depression; such a depression exists under the City of Modesto. The Draft EIR for the Modesto Surface Water Treatment Plan (1989) reported that the groundwater levels had declined an average of 18-feet in the downtown Modesto area during the previous 30-year period.

The groundwater basin under Modesto is made up of three distinct geologic formations that produce water. The Modesto Formation is a shallow formation occupying the area under Modesto proper. The Riverbank Formation underlies the Modesto formation and outcrops along the western edge of the City of Waterford. The Turlock Lake Formation underlies the Riverbank Formation and outcrops along the eastern edge of the foothills near Turlock Lake. The Turlock Formation is underlain by a clay water barrier (Corcoran Clay) that restricts the vertical movement of water and confines the Turlock Formation's water resources.

Ground water tends to flow east to west, according to some reports, with some flows to the southwest and the Tuolumne River. This would imply that the City of Waterford is located at the top of the groundwater basin and less likely to be impacted by overdraft near the City of Modesto.

Groundwater is presently the sole source of domestic water supply within the City of Waterford. The city of Waterford's water system serves approximately 7,800 residents, and encompasses a service area of approximately 950 acres. The system includes five operational wells and approximately 120,000 linear feet of pipeline.

The water supply was originally constructed and maintained by the Del Este Water Company. Del Este was purchased by the City of Modesto in 1995, which now operates and maintains the water supply system. As a result of the purchase and the merger of the Waterford Irrigation District into the Modesto Irrigation District (MID) in 1978, the MID has extensive water rights under the State's Water Commission Act of 1914. The City of Modesto is the water supplier to the communities of Waterford, Hickman, Del Rio, Salida, Grayson, and parts of Ceres and Turlock.

According to a Hydraulic Evaluation Study of the city of Waterford Water System (November 2004), commissioned by the City of Modesto, recommended capital improvements to the existing system to correct system deficiencies are anticipated to cost approximately \$7.9 Million. These improvements include:

- Well treatment system for the out of service well (Well 303)
- Install backup generators at all well sites
- Drill and construct a new production well
- New 650,000 gallon storage tank and associated pump station
- 2,975 linear feet of new pipeline and 11,085 linear feet of upsized pipeline

The existing City of Waterford water system is approximately 80 to 85 percent built out. The additional 15 to 20 percent infill development that is expected to occur within the existing city boundaries, and in addition to the previously recommended capital improvements, total costs are estimated to be approximately \$900,000 for 9,654 linear feet of upsized pipeline. Based on the Hydraulic Evaluation Study, the Waterford water system will be capable of providing sufficient service to existing and future customers if the recommended capital improvements are made.

One of largest new residential development projects, called River Pointe, has developed its own independent water system. This project is completely independent of the City of Modesto and the MID system and is owned and operated by the City of Waterford.

### ***Soils***

The Natural Resource Conservation Service classifies soils into four hydrologic soil groups based on the soil's runoff potential:

**Group A** is sand, loamy sand or sandy loam types of soils. These soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.

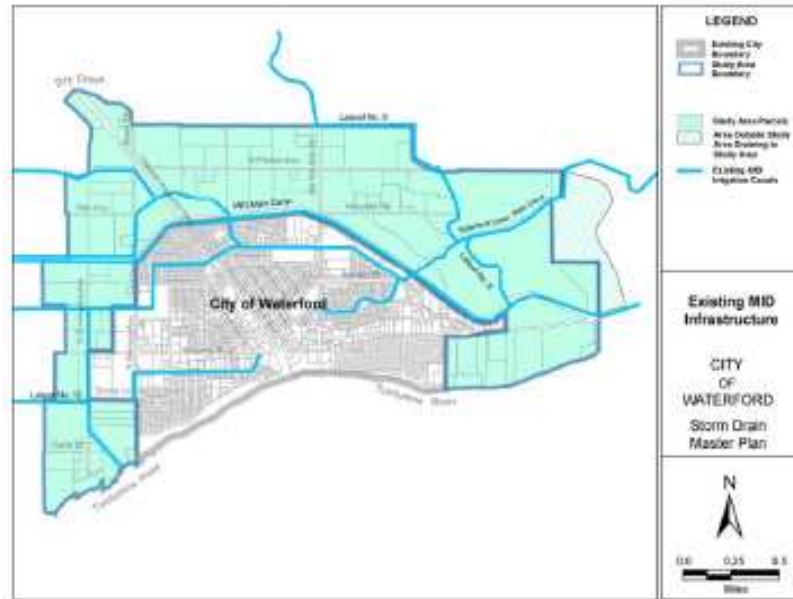
**Group B** is silt loam or loam. These soils have a moderate infiltration rate when thoroughly wetted and primarily consist of moderately drained soils with moderately fine to moderately coarse textures.

**Group C** soils are sandy clay loam. These soils have low infiltration rates when thoroughly wetted and primarily consist of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.

**Group D** soils are clay loam, silty clay loam, sandy clay, silty clay or clay. These soils have the highest runoff potential and very low infiltration rates when thoroughly wetted. They primarily consist of clay soils with a high swelling potential and/or soils with a permanent high water table.

Soils within the study area range from B-D, with Type C soils accounting for approximately 56 percent of the soils, Type B soils accounting for 42 percent of the soils and Type D soils accounting for approximately 4 percent of the soils.

**Figure 3.9.2**  
**Study Area and Modesto Irrigation District Canal System**



#### ***Existing Drainage and Irrigation Facilities***

There are a number of MID irrigation canals and drainage ditches in the study area and city as shown in Figure 3.9.2. The district's facilities have historically been used for irrigation and drainage purposes. The MID Modesto Main Canal acts as a natural drainage boundary because water cannot flow from one side to the other without being intercepted by the canal.

The canal system's primary purpose is to provide irrigation water to area orchards, pastures and other farmlands. For this reason the canal system is typically dry during the winter months. Management of these canals includes restricted access to the canal banks within urban areas for safety reasons, and strict control of vegetation to control weeds and limit the amount of "weed" seeds that are transported to irrigated farmland.

#### **Waterford Urban Water Supply**

***History of Waterford's Water System*** Waterford's water distribution system was founded in approximately 1913 by the Waterford Land and Development Company. This system was purchased by the Del Este Water Company (DEWC) in 1938. The system was originally permitted by the State Department of Health Services in 1956. The permit (No. 50-006) was amended twice, in 1964 and 1993. In 1996 the City of Modesto purchased the water systems owned by DEWC, including the system serving the City of Waterford, and Modesto currently owns and operates the system.

***The Modesto Irrigation District*** The Modesto Irrigation District (MID). has developed numerous water rights and facilities to provide agricultural irrigation water from the Tuolumne River and has also developed groundwater supplies for agricultural uses. In the early 1990s the city, MID and the Del Este Water Company formed a partnership and executed a Treatment and Delivery Agreement to use MID's surface water rights for domestic purposes. The Modesto Domestic Water Project (MDWP) was the result of this partnership and the agreement obligates MID to deliver 30 million gallons per day of treated domestic water from its regional water treatment plant located at the Modesto Reservoir. The plant and storage and delivery facilities were completed in January 1995.

The City of Modesto is MID's only domestic water customer. The implementation of the water treatment facility allowed the City of Modesto to cut its groundwater pumping in half. The city currently supplies approximately 60 percent of its water use in its overall service area from the 118 city owned and operated wells. In the year 2000, the city produced 45,273 acre-feet of water from these wells.

The population of the Modesto/MID joint service area is expected to be 244,000 by 2005 and 315,900 by 2010. The corresponding water demand will increase from the 2000 demand of 72,840 acre-feet per year to 102,390 ac-ft/year by 2010. The total municipal safe yield of the Stanislaus and Tuolumne River Groundwater Basin is estimated at 50,000 ac-ft/year with the portion of the safe yield allocated to the joint service area being 42,625 ac-ft/year. This basin provides the vast majority of the groundwater to the city's system. Currently, the Turlock Groundwater basin provides roughly nine percent of the groundwater to the system.

Surface water supplied by MID's Modesto Regional Water Treatment Plant is supplementing the groundwater supplies. The current design capacity of the treatment plant is 33,607 ac-ft/year. By 2005, the joint service area will require an additional 33,450 ac-ft/year from the treatment plant, and by 2010, an additional 10,000 ac-ft/year will be required, assuming that the full safe yield can be obtained from the groundwater supplies.

The *Final 2000 Urban Water Management Plan*, prepared for the City of Modesto and MID by Black & Veatch Corporation, concluded that in order to assure a safe and reliable water supply for the residents and business owners in the joint service area MID should proceed with plans to construct Phase II of the water treatment plant for start-up in 2005. This expansion would roughly double the capacity of the treatment facility. The report also concluded that the City of Modesto should immediately investigate current and potential groundwater quality issues that could impair the basin's safe yield amounts.

#### **Existing (Modesto) Water System Description**

***Distribution System:*** The original system for Waterford went into service before the 1920s utilizing 2-inch to 8-inch dipped and wrapped steel pipe. New subdivision tracts in the city install 4-inch to 12-inch PVC pipe, and it is not known how much of the original pipe has been replaced.

The system is operated as a single pressure zone with design pressures ranging from 45 to 60 pounds per square inch (psi). Reports indicate that there are serious problems in maintain these pressures and some instances of water pressure falling below 20 psi during periods of peak demand. The system does not include storage reservoirs, but all wells have chlorination facilities.

When it purchased the Del Este Water Company in 1995 the City of Modesto became the retail water purveyor to Waterford, Hickman, Del Rio, Salida, Grayson, and parts of Ceres and Turlock. At the time of the purchase, the Del Este Water Company served approximately 30 percent of the municipal customers in the Modesto area. The City of Modesto does not exercise land use powers in areas it serves which were formerly within the Del Este system and outside of the city's sphere of influence.

***System Water Production Capacity:***

The city is supplied potable water by six (6) groundwater wells which draw water from the underlying deep confined aquifer of the San Joaquin Valley. Two of the wells (Well No. 302 and 303) were constructed in 1991 while the other four wells were constructed and put into operation in the early 1940s and 1960s. The well number, name, address, date of drilling/deepening, and well depth is shown in Table 3.9.2 below:

**Table 3.9.1  
Well Identification, Address, Drilling Date and Depth**

Well No.	Name	Address	Drill Date	Depth
242	Waterford	12315 Dorsey St.	1945/1985	295
244	Tim Bell	300 Tim Bell Rd.	1949	259
245	Skyline	13601 Skyline Blvd.	1965	300
286	Reinway	546 N. Reinway Ave.	1984	311
302	S. Reinway	200 S. Reinway Ave.	1991	237
303	Northridge	12401 Bonnie Brae Ave.	1991	276

**Table 3.9.2  
Well Depth and Production**

Well No.	Data	Static Water Level	Pumping Water Level	Pump Flow (GPM)	Discharge Pressure
242	5/29/03	82	86	425	62
244	5/29/03	89	94	475	70
245	5/15/03	93	102	480	55
286	5/15/03	77	83	1000	52
302	5/15/03	85	101	900	62
303	3/11/03	82	91	800	70

The wells produce about 4,080 gallons per minute (gpm), according to production information provided by the City of Modesto.

***The Modesto Water System Organization:***

The Modesto water system is organized, and data reported, in three Zones; Zone 1 (fund 6100) is the City of Modesto's water service; Zone 2 (Fund 6150) is the portion of the old



Del Este system providing service within the City of Modesto; Zone 3, (Fund 6160) is the old Del Este system that includes service in Waterford, Hickman, Del Rio, Salida, Grayson and parts of Ceres and Turlock.

***The City of Waterford's Water System:***

Based on the fact that the a development proposal (River Pointe) was located outside of the Modesto Water service area and the City of Modesto's position regarding the cost of water system expansion, the City authorized the Grupe Development Company to develop a water system for their project. This system was to be developed to City of Waterford standards and given to the City for operation and maintenance. This system is presently owned and operated by the City of Waterford and forms the core of the City's future water service plan.

***Water Supply***

The city currently supplies water only to the River Pointe project area. The general plan annexation area is currently supplied by MID for agricultural uses and private wells for residential uses. As part of the annexation process, the city is preparing an Urban Water Management Plan (UWMP). The plan addresses current and future water demands for the city. The UWMP concludes that growth in the annexation area will increase water demand for urban uses. However, the conversion of agricultural land to urban uses is expected to decrease the total demand for water. The UWMP estimates the current agricultural water usage for the annexation area at approximately 4,500 acre-feet per year (afy).

An afy is approximately 325,851 gallons of water. At complete annexation build-out, the residential, commercial and industrial demand for water is projected to be approximately 3,300 afy. It is expected that the city and developers will supply the new development with new private groundwater wells. The existing City of Waterford water system currently minimal storage tanks; therefore, almost all of its available storage capacity and ability to meet peak operational demands is based on groundwater basin storage and pumping capacity. To accommodate future growth, Waterford will require additional storage facilities to meet peak demand flow conditions.

Currently, surface water supplied by MID's Modesto Regional Water Treatment Plant is supplementing existing groundwater supplies to the City of Modesto. Waterford's system is solely supplied by groundwater. Waterford has no connections to the City of Modesto/MID system. There is the potential for the city to connect to this system in the future. However, the City of Modesto has no current plans to connect Waterford to the system.

***Drainage***

The principal drainage basins in the Waterford Planning Area are the Tuolumne River, Dry Creek and the MID Canal. All runoff from the Planning Area flows to one of these basins. The Tuolumne River flows through the southern portion of the Planning Area, while MID Canal and Dry Creek and flow through the north portion of the Planning Area. These local basins all flow to the San Joaquin Valley regional drainage basin. The

San Joaquin regional drainage basin extends from near the city of Stockton to the north to near the city of Fresno to the south, and from the Sierra Nevada on the east to the coastal ranges on the west. The basin encompasses approximately 11,000 square miles. The principal tributaries to this basin include the Tuolumne, Stanislaus and Merced rivers.

Waterford has historically been subject to localized flooding and a number of improvements have been installed and future improvements are being planned within the Planning Area. Waterford's existing system consists of storm sewers and pump stations that discharge runoff primarily into the Tuolumne River and the main MID lateral canal.

### ***Drain Plan***

To decrease dependence on the Tuolumne River, Dry Creek and MID Canal, and to unify Waterford's different storm drainage systems, the city has prepared a comprehensive storm drain master plan. The plan identifies where major arterial lines will connect the different storm drainage systems. When complete, the system will connect all of the city's storm water facilities and include storm water treatment that will meet or exceed storm water discharge standards as established by state and federal water quality regulations.

Recent amendments to the Federal Clean Water Act have tightened regulations with respect to storm water discharge. With continued growth in Waterford expected, new regulations will require some degree of treatment for all storm water discharge. By consolidating its flows to the waste water treatment facility the city will be better prepared to deal with these regulations.

The city has recently encouraged the use of detention basins in new development areas. Most detention basins will be designed to also be used as parks.

### ***Water Quality***

The City of Modesto's Waterford water system has not required any major treatment facilities to deliver potable water. The system includes five operational wells. Four of the five operational wells require no treatment systems, and these wells discharge groundwater directly into the distribution system. Well 244 has a granulated activated carbon treatment system. Well 303 is currently out of service. It will also require a granulated activated carbon treatment system.

### ***Groundwater Quality***

A 1997 study, prepared by Nolte & Associates, on the Modesto (Del Este) water system that serves the city of Waterford provides the most comprehensive assessment of groundwater quality for the area. According to the study, each well in the city's supply system is equipped with sodium hypochlorite facilities to disinfect the well water. Each well site includes a locked chlorination storage container which houses the sodium hypochlorite solution day tank and the appropriate positive displacement pumps. The water system operators maintain a free chlorine residual of approximately 0.3 to 0.8 parts per million in the water leaving the wells.

The City of Modesto tests the water from these wells on a regular basis. The system's state permit requires sampling the potable water for bacteriological quality on a monthly basis, and chemical quality on a yearly basis.

Monitoring includes the testing for general minerals, trace inorganic and organic compounds, pesticides and herbicides, radiological parameters, and the presence of bacteria. The monitoring data records available at the time of the preparation of the Nolte & Associates study indicate the wells were producing a very high quality groundwater based on the primary and secondary drinking water standards.

The secondary drinking water standard for total dissolved solids (TDS) is 500 mg/L (milligrams per liter). The TDS results from monitoring data were typically in the range of 130 to 250 mg/L. All the secondary drinking water standards are for the purposes of aesthetics and consumer acceptance. The primary drinking water standards are for the purpose of protecting the health of the customer. Nitrate, for example, has a primary drinking water standard at 45 mg/L (as NO<sub>3</sub>). The results from the existing groundwater wells were typically in the range of 7 to 18 mg/L.

Of all the required water quality monitoring, only dibromochloropropane (DBCP) results were significant in the number of positive tests above the maximum contaminant level (MCL). The primary standard for DBCP is 0.2 micrograms per liter. The Modesto Water Department provided data that indicated that two tests (September and December of 2002) on Well No. 303 exceeded the DBCP standard. Two subsequent readings in 2003 approached the 0.2 MCL. As a result of these test results, Modesto Water has initiated treatment of the water from Well No. 303. There have been some positive DBCP test results from wells nos. 244 and 245, but the tests results have been below the 0.2 MCL standard. These test results varied from non-detectable to 0.150 micrograms per liter.

The Waterford water system has had past occurrences of positive total coliforms. In 1994, two routine coliform samples taken from the water system were confirmed as positive. Subsequent fecal coliform testing was negative. The absence of fecal coliform confirmed that the contamination of the water system was not the result of wastewater contamination. Furthermore, test results were negative for the presence of bacteria since the installation of permanent disinfection facilities.

The Nolte & Associates study concluded that, overall, the Waterford water system was producing a very high quality water from the existing groundwater wells.

### ***Surface Water Quality***

Waterford is located within the jurisdiction area of the Central Valley Regional Water Quality Control Board (CVRWQCB), which is part of the California Environmental Protection Agency and implements the federal NPDES regulations.

No water quality issues have been identified or reported for surface water supply sources discussed in this UWMP. The neighboring City of Modesto has identified localized groundwater quality issues, including issues at one of its service wells within Waterford.

Well No. 303 in Waterford is currently out of service due to the presence of Dibromochloropropane (DBCP), a nematocide. This is considered to be an isolated occurrence, with the other five service wells within Waterford currently operating under normal conditions. In general, groundwater in the Modesto sub-basin is reported as having good quality, and localized groundwater issues are the result of constituents such as total dissolved solids, nitrates, radionuclides, pesticides, and volatile organic compounds (STRGBA 2005). In addition to these constituents, point-source issues such as gas and solvent leaks and spills are present, but are not expected to impact the city's supply.

***Flooding:***

***Flood Plain*** FEMA Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRM) for the area were analyzed to determine the 100-year floodplain elevations and flood categories for the area. The city and study area are predominately categorized as Zone C, which is defined as "areas of minimal flooding". The local vicinity of Dry Creek and the Tuolumne River are categorized as Zone A and Zone B flood zones. Zone A is defined as "areas of 100-year flooding; base flood elevations and flood hazards not determined" and Zone B is defined as "areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than (1) one foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood."

The FIS completed in 1979 for the city of Waterford presents the 100-year floodplain elevation for the Tuolumne River at Hickman Road Bridge as 86 feet above mean sea level based on the Northern Geographic Vertical Datum. Dry Creek was not mapped as part of the city FIS or the Stanislaus County unincorporated area FIS.

***Potential Dam Failure*** Waterford is located within the potential dam failure inundation areas for the Don Pedro Reservoir. The city has the potential of immediate damage in the event of failure.

Flooding has been a major problem throughout the history of Stanislaus County. Significant flooding occurred in 1983 along the San Joaquin River, and along isolated stretches of the Tuolumne River.

The State Reclamation Board has identified and adopted designated floodways along the Tuolumne River and portions of Dry Creek. The Department of Housing and Urban Development (HUD) has also developed flood hazard zones which are referred to in the county's flood control ordinance.

Substantial action has taken place to reduce flood hazards. According to the MID March 1997 "Irrigation Line", a series of storm events tested the limits of Lake Don Pedro's safety design standards. Don Pedro Dam, on the Tuolumne River, is continually monitored to reduce the chances of flooding. In early and mid-December 1996, a series of storms brought the levels at Don Pedro above the 801.9 ft. (normal) elevation, well below the 830 foot maximum elevation. On January 1 and 2, 1997 tremendous volumes of water

flowed into the lake from the upper watershed, estimated in excess of 50,000 cfs for 46-hours.

The emergency spillway gates for the dam were opened and the water continued to rise to reach the maximum capacity of the dam. The dam held and a major flood along the Tuolumne River was averted.

### ***3.9.2 Environmental Impacts***

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Parking areas, roadways, landscape areas and other human activities will result in the deposit of certain pollutants that can be washed into the regional surface water system and contaminate surface water supplies. Urban growth and development, provided for within the general plan, could result in the location of structures within flood areas and will most likely result in the creation of impervious services that will increase the flow of flood waters during times of intense storm activity. Urban water uses will increase demands on groundwater resources, as opposed to surface water resources that are currently used to support agriculture.

#### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Hydrology and Water Quality as follows:

##### ***Would the project:***

- Violate any water quality standards or waste discharge requirements?
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
- Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?
- Otherwise substantially degrade water quality?
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map or other flood hazard delineation map?
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
- Result in inundation by seiche, tsunami, or mudflow?

## ***ASSESSMENT OF WATER QUALITY***

### **DEFINITION OF GROUNDWATER QUALITY**

Water of suitable quality to meet mineral (water) quality objectives and beneficial uses defined in the current adopted Water Quality Control Plan for the area within which the project is located.

### **DEFINITION OF TECHNICAL TERMS**

*Ground Water* That part of the subsurface water which is in the zone of saturation (DWR Bulletin Number 74).

*Groundwater Quality Objectives* Mineral (water) quality objectives and present and potential beneficial uses of groundwater contained in the most recent Water Quality Control Plan, adopted for the area within which the project is located.

*Hydrologic Unit* A drainage area boundary delineated by the California Department of Water Resources (DWR) into a hydrologic unit, sub-unit or sub-area.

*Surface Water* All water which occurs upon the earth's surface.

*Surface Water Quality Objectives* Mineral (water) quality objectives and present and potential beneficial uses of surface water contained in the most recent Water Quality Control Plan for the area within which the project is located.

### **THRESHOLD CRITERIA**

A land use or activity which could cause a significant adverse impact upon groundwater resources quality in itself or on a cumulative basis. Threshold criteria include, but are not limited to:

1. Projects that will individually or cumulatively degrade the quality of ground or surface water in such a manner as to cause it to fail to meet groundwater quality objectives for a hydrologic unit defined in the basin plans is a significant adverse impact.
2. Failure to meet the water quality standards of the state Department of Health Services or waste discharge standards of the Regional or State Water Quality Control Board.

## ***ASSESSMENT OF GROUNDWATER QUANTITY***

### **DEFINITION OF GROUNDWATER QUANTITY**

The volume of groundwater for one or more beneficial uses usually expressed in gallons or acre-feet. (one acre-foot is 325,851 gallons.)

### **DEFINITION OF TECHNICAL TERMS**

*Ground Water* That part of the subsurface water which is in the zone of saturation (DWR Bulletin Number 74). The annual decrease in the amount of groundwater in storage that

occurs during a long time period under a particular set of physical conditions reducing the supply and adversely affecting the use and disposal (including extractions) of water in the groundwater basin.

*Hydrologic Unit* A drainage area boundary delineated by DWR as a hydrologic unit, sub-unit or sub-area which may contain one or more groundwater basins.

#### **THRESHOLD CRITERIA**

A land use or activity which could cause a significant adverse impact upon ground water resources quantity in itself or on a cumulative basis. Threshold criteria include, but are not limited to:

1. Any use that will increase the net utilization of groundwater in a basin that is over-drafted or adversely impacts an over-drafted basin is a significant adverse impact.
2. In groundwater basins that are not over-drafted or that do not impact an over-drafted basin, net water use that will individually or cumulatively cause the basin to become over-drafted is a significant adverse impact.
3. In areas where the basin condition is not known, it must be assumed that any net increase in water use may potentially cause a significant impact until such time as reliable studies determine otherwise.

#### ***ASSESSMENT OF EROSION***

##### **DEFINITION OF ISSUE**

Erosion, and the resulting siltation of streams, lakes and water ways is a natural process. However, certain development or construction projects can accelerate the natural erosion process and contaminate surface water courses and water bodies with sediments. Building codes (UBC) and local development and improvement standards regulate construction activities that could result in accelerated man-made erosion and the generation of sediments discharged into surface water systems.

#### **THRESHOLD CRITERIA**

A project that does not comply with the discharge standards established in a Water Basin Plan or a project that does not comply with local regulations and standards for erosion and sediment control would normally be expected to create a significant adverse environmental impact.

#### ***ASSESSMENTS OF FLOODING***

##### **DEFINITION OF ISSUE**

Changes in the natural drainage course of an area or development that results in altering the course of a stream or water course, can result in directing storm water flows onto areas not previously subject to inundation during peak storm events. This new flooding condition can also result from development that substantially increases storm water runoff into established storm water drainage courses as a result of the creation of new

impervious surfaces.

#### **THRESHOLD CRITERIA**

A project is considered to result in significant impacts to flood management and drainage facilities if it creates impacts as follows:

- Proposes construction of a storm water facility that does not comply with standards of the city, county or any flood management district with flood management jurisdiction over the site where the facility is to be located.
- Results in the obstruction of normal flow or restricts the natural flow of a storm water channel in such a manner as to create the potential for storm water flows to overflow existing water course channels and cause flooding of surrounding areas.

#### ***ASSESSMENT OF STORMWATER RUNOFF***

##### **DEFINITION OF ISSUE**

Increased storm water runoff can result in the over-taxing of existing storm water drainage systems or could result in the introduction of polluted storm water into a natural drainage system. The pollution could include sediments, oil and other chemicals from lawns, roadways, parking lots and unprotected excavations.

#### **THRESHOLD CRITERIA**

A project is considered to result in significant impacts if it creates storm water runoff impacts as follows:

- The potential to increase runoff by 10 percent or more during peak storm periods.
- The potential to generate storm water runoff during peak storm periods that will exceed the design capacity of downstream storm water diversion or detention facilities or any bridge, culvert or similar downstream structure used to cross a storm water channel.
- Increase storm water flows into any designated flood hazard area.

The preservation of water resources within the state are identified CEQA priorities. From the CEQA Checklist of the CEQA Guidelines, threshold environmental standards have been developed to identify potential significant impacts to hydrological resources and water quality.

#### ***B. Potential Significant Impacts:***

##### ***Hydrology and Water Quality Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential hydrology and water quality impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Violate any water quality standards or waste discharge requirements?*



Any development undertaken in a manner that is consistent with the policies and standards of the city's general plan, along with adopted sewer, wastewater treatment, Water and storm drain master plans, will not violate any water quality standard or waste discharge requirement.

- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

The existing and proposed city drainage system, as reflected in the city's adopted Storm Drain Master Plan, relies on the natural drainage course of the area, mainly the Tuolumne River to the maximum extent possible. The general plan includes goals and policies that put limits and design standards on development that disturbs natural water bodies and natural drainage systems.

- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

Most floods in Stanislaus County are produced by extended periods of rainfall during the winter months. This is the time of year when an adequate surface drainage system is critical. Further development will contribute to the surface drainage problem.

The project-related urban development is likely to result in some modifications to the existing surface water drainage pattern and the over-covering of existing pervious soil surfaces with impervious street, parking, and building surfaces. Some consequent increases in surface runoff are anticipated. Implementation of general plan policies and standards, combined with other applicable development regulations, should minimize the potential for flooding both on and off-site.

- *Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

Urban development, as accommodated in the general plan, is likely to result in some modifications to the existing surface water drainage pattern and the over-covering of existing pervious soil surfaces with impervious street, parking, and building surfaces. This storm-water run-off may include pollutants that could enter regional surface waters. Federal and state standards, along with policies and standards contained in the general plan, for the discharge of storm water will reduce this potential impact to an acceptable level. In addition, policies are proposed to educate all who live, work and shop in the planning area to minimize activities that pollute urban runoff.

- *Otherwise substantially degrade water quality?*

Any new development would be served by a community sewage disposal system and would be subject to contemporary standards that would preclude the potential to add pollutants to the groundwater. Policies and standards contained in the general plan, and associated infrastructure planning policies and standards, to the maximum extent practicable, will cause developers to minimize pollutant loading and flow velocity from new developments projects during and after construction. To the same extent, requirements for new development and construction to be served by community water systems eliminate or reduce the need to access groundwater resources and thereby minimize the potential for future groundwater contamination.

- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Insurance Rate Map or other flood hazard delineation map?*

The city of Waterford and its future urban expansion area are not located within a 100-year flood hazard area as mapped under the federal Flood Insurance Rate Map program or any other flood hazard mapping.

- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows?*

Building standards implemented within the city limit the potential for the location of buildings or structures within any flood hazard areas in such a manner that it is unlikely that they would impede or redirect flood flows.

- *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*

The project area is not located within an area that is likely to subject people or property to significant risk of loss, injury or death as a result of flooding. The community is not in the direct path of a flood area from a dam or reservoir of sufficient volume to represent any significant potential hazard from dam or levee failure.

- *Inundation by seiche, tsunami, or mudflow?*

The project area is not located adjacent to the ocean or any large body of water that would create the potential for inundation by seiche or tsunami. The terrain and soils found in the project area are not likely to result in a mudflow.

- *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

It is expected that the City of Waterford will supply future growth in the city with its own groundwater well system up to approximately 2018. Studies indicate that there is

equilibrium between groundwater inflows and withdrawals in the region and that this situation can be expected to improve as more urban water users convert to surface water use. The city should pursue agreements with the City of Modesto to secure a permanent surface water supply in the future. Based on the findings of the *City of Waterford Urban Water Management Plan*, the project area will not substantially deplete groundwater supplies.

*Hydrology and Water Quality Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential hydrology or water quality impact is expected to result in a significant adverse environmental impact due to project implementation.

***C. Proposed General Plan Goals & Policies:***

The Waterford General Plan contains policies and goals that aim to preserve hydrological resources of the city. There are policies in the Land Use, Sustainable Development and Urban Design chapters of the general plan, that, while not directly aimed toward hydrological resource preservation, have the effect of preserving and protecting the city's waterways and riparian corridors that contain many of the city's hydrological assets. The Urban Expansion and Open Space Conservation chapters of the general plan contain specific goals and policies for the preservation and enhancement of the city's hydrological resources.

***Overall Goals for Hydrology and Water Quality Resources***

***Goal Area- Urban Expansion (UE)***

UE-A Compact Urban Form

UE-Efficient Urban Expansion

***Policy***

UE-2 Designate areas for new urban development which reflect the physical characteristics and environmental constraints of the planning area.

***Goal Area- Open Space-Conservation (OS-C)***

OS-C-Improve and Enhance Water Quality

OS-C-Conserve Water Resources

***Policies***

OS-A.2 Preserve and enhance the Tuolumne River and Dry Creek in their natural state throughout the planning area.

OS-A.5. Preserve and enhance water quality.

OS-E.1 Promote water conservation throughout the planning area.

***Other Regulations:***

As a requirement of law, the city must develop a program to regulate storm water discharge. This program is part of the Storm Drain Master Plan adopted and

maintained by the city. This plan includes Best Management Practices (BMPs) and Minimum Control Measures (MCMs) to be implemented by the city.

BMPs are measures that may yield a significant result while being implemented at a relatively low cost and low level of effort. Various sources have compiled recommended storm water BMPs, including the Model Urban Runoff Program (MURP), a guide developed by a small municipality for other small municipalities developing urban runoff and storm water management programs. In addition, the EPA has compiled several example BMPs to achieve each MCM.

Example BMPs for each MCM selected from recommendations set forth by the MURP, EPA, and recent SWMPs completed by local municipalities are listed below. Additional BMP alternatives may be found on the EPA's National Menu of Best Management Practices for NPDES Storm Water Phase II website.

***Minimum Control Measures (MCM):***

***Public Outreach and Education*** Public education is a key component to any effective storm water management program. Inclusion of some or all of these BMPs in the SWMP work plan will assist municipalities in achieving public support for storm water protection measures. The Public Outreach and Education MCM is aimed at identifying measures to be implemented to increase general knowledge and awareness of storm water impacts. The MURP identifies common practices that can be undertaken by residents and businesses to reduce potential for storm water contamination from a variety of public and private activities. These recommended BMPs are summarized in Appendix A of this document.

To comply with the requirements of the MS4 permit, Waterford will be required to implement a public education program to distribute educational materials to the community or conduct equivalent outreach related to the impacts of storm water discharges on water bodies and actions that the public can take to reduce pollutants in storm water runoff.

Example BMPs related to achieving the Public Outreach and Education MCM include:

- Public education radio campaign on storm water
- Storm water education program for school children
- Storm water education materials for restaurant owners
- Develop and distribute bilingual brochures, posters, magnets, coloring books for public information
- Educate restaurants and auto repair shops about BMPs
- Distribute educational materials at point-of-sale and additional venues

***Public Participation and Involvement*** The Public Participation and Involvement MCM is included in recognition of the fact that an involved public will be more likely to support a storm water program. Addressing this MCM will facilitate storm water

program implementation as well as financing. Example BMPs to address this MCM include the following:

- Establish a NPDES storm water steering committee
- Hold public meetings to receive input on the proposed program
- Enlist volunteers to mark storm drains and do community cleanups
- Conduct public workshop on the proposed Storm Water Pollution Prevention Plan
- Write a draft of or revise the existing storm water quality ordinance
- Institute an annual community cleanup with volunteers

The MS4 permit requires the permittee to comply with State and local public notice requirements when implementing public involvement/participation programs.

### ***Illicit Discharge Elimination***

Illicit discharges are defined by EPA as wastes and wastewaters that are not from storm water runoff and are not otherwise authorized by a NPDES permit. These illicit discharges can enter the storm water system through direct connections, such as via a combined wastewater/storm water system. Alternatively, illicit discharges can enter through indirect means such as infiltration from leaky waste water systems, spills, dumping into the storm drain, etc. This MCM involves identification and stoppage of illicit discharges.

The MS4 permit requires permittees to implement the following minimum actions to identify and eliminate illicit discharges:

1. Develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR §122.26(b)(2))
2. Develop a storm sewer system map with locations of all outfalls and names and locations of all waters of the U.S. receiving discharges from those outfalls
3. Develop and implement an ordinance or other regulatory mechanism to prohibit non-storm water discharges and implement appropriate enforcement procedures and actions
4. Develop and implement a plan to detect and address non-storm water discharges to the system that are not authorized by the NPDES permit, including illegal dumping
5. Inform public employees, businesses, and the general public of the hazards associated with illegal discharges and improper waste disposal
6. Address any of the following categories of non-storm water discharges or flows that are identified as significant contributors of pollutants:
  - Water line flushing landscape irrigation diverted stream flows rising ground waters
  - Uncontaminated ground water infiltration (as defined at 40 CFR §35.2005(20)) to separate storm sewers

- Uncontaminated pumped ground water
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensation
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual residential car washing
- Flows from riparian habitats and wetlands
- Dechlorinated swimming pool discharges

Discharges or flows from fire fighting activities are excluded from the prohibition against non-storm water. These flows should only be addressed if they are identified as significant sources of pollutants to waters of the U.S. The RWQCB may require the permittees to monitor and submit a report and to implement BMPs on discharges from the above flows if it is determined that they are significant sources of pollution to U.S. waters.

Additional example BMPs to address this MCM include:

- Identify illicit connections through dry weather screening and targeted video inspection
- Implement an illicit discharge/illegal dumping hotline
- Conduct pilot surveillance for illicit discharge detection and elimination
- Conduct annual survey of city for illicit discharges

***Construction Site BMPs Over 1 Acre*** Construction sites can be a significant source of sediment discharge, especially when installation and maintenance of erosion and sediment controls are not required or adequately enforced. This MCM is intended to institute BMPs to minimize sediment discharge from construction sites larger than one acre.

The MS4 permit requires the permittee to develop, implement, and enforce a program to reduce pollutants in storm water runoff resulting from construction activities generating a land disturbance of greater than or equal to one acre. If the land disturbance is less than one acre, but the construction is part of a larger activity that will ultimately disturb one acre or more, reduction of storm water discharges from that activity must be included.

To comply with MS4 requirements, Waterford will be required to develop and implement a storm water quality control program for construction sites over one acre that includes the following minimum elements:

1. An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions, or other effective mechanisms, to ensure compliance
2. Requirements for construction site operators to implement appropriate erosion and sediment control BMPs
3. Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site
4. Procedures for site plan review considering potential water quality impacts
5. Procedures for receipt and consideration of information submitted by the public
6. Procedures for site inspection and enforcement of control measures

Additional example BMPs for this MCM are:

- Require erosion and sediment control plans
- Require the use of appropriate perimeter controls on construction sites
- Develop a certification program for contractors
- Educate local developers, construction firms and building department on BMP requirements
- Require Storm Water Pollution Prevention Plans for all construction over 1 acre
- Conduct training for building inspectors and plan review engineers on requirements

***Post-Construction BMPs*** This MCM targets reductions in discharges from new development and significant redevelopment. These projects offer significant opportunities to install structural runoff controls on both the site and regional scales. To comply with the provisions of the MS4 permit, Waterford will be required to:

1. Develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan
2. Develop and implement strategies combining appropriate structural and/or non-structural BMPs
3. Use an ordinance or other regulatory mechanism to address post construction runoff from new development and redevelopment projects
4. Ensure adequate long-term operation and maintenance of BMPs

Because Waterford's projected MS4 eligibility is based on future high population growth, additional provisions of the MS4 permit would require Waterford to adopt an ordinance to ensure implementation of design standards for the following categories of discretionary development and redevelopment projects:

- Single-family hillside residences
- 100,000 square foot commercial developments

- Automotive repair shops
- Retail gasoline outlets
- Restaurants
- Home subdivisions with 10 or more housing units
- Parking lots 5,000 square feet or more or with 25 or more parking spaces and potentially exposed to storm water runoff

***Municipal Activities*** Municipal operations may contribute to discharge of pollutants in a variety of ways. By educating municipal employees on the potential impacts of their own operations on storm water quality, municipal crews can learn to set a good example for other citizens.

At a minimum, MS4 permit compliance will require the City of Waterford to develop and implement an operation and maintenance program including a training component. The program goal shall be to prevent or reduce pollutant runoff from municipal operations. Training materials are available from several sources, including the U.S. EPA, the State of California, and other organizations. The employee training program will be designed to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet building maintenance, new construction and land disturbances, and storm water system maintenance.

Potential additional BMPs that may be implemented to address this MCM include:

- Develop spill prevention and control plans for municipal facilities
- Incorporate the use of road salt alternatives for roadway deicing
- Inspect and assess cleanliness of municipal activities
- Participate in regional water quality initiatives
- Develop or revise standard operating procedures (SOPs) for street or storm drain spills
- Assess street sweeping effectiveness
- Conduct pilot metals testing on storm water detention basins

***D. Short-Term Impacts:***

Adoption of the general plan will result in the drafting and adoption of implementing policies and provisions, such as zoning and subdivision standards, that will be utilized in the review of development proposals. These actions and activities will not have any adverse impacts on the hydrology and water quality of the area, but will lead to improved regulation of development with respect to potential water quality impacts.

***E. Long-Term Impacts:***

Growth and development within the urban area of the city will result in some modifications to the surface water quality. Landscaping and earth modifications may result in some increased erosion and sedimentation of stream-beds and deposition of chemical nutrients into stream waters. These changes, however, are expected to be minimal and will not result in a substantial degradation of surface water quality. Increased storm water runoff can be contained within existing surface water drainage



channels or new facilities designed and constructed in accordance with policies and standards established in the general plan. Long-term development trends will increase demands on groundwater resources. These impacts, however, will be regulated by the ability of the city to develop groundwater supplies and long-term plans to convert to surface water sources to meet urban potable water demands.

***F. Cumulative Impacts:***

The city of Waterford's annual needs for water at annexation build-out to support a population of 17,672, would be approximately 3,300-acre feet per year (afy). As part of the State's Urban Water Management Planning Act, the city is required to prepare an Urban Water Management Plan. The plan evaluated future domestic water needs and identified increasing urban water demand in response to projected population growth. In order to meet future water needs in the service area, new wells and groundwater recharge facilities will need to be constructed. In addition, the MID's Modesto Regional Water Treatment Plant will need to be expanded and a new water treatment facility developed that includes the City of Waterford.

The wastewater treatment plant expansion plan when complete will provide capacity to support planned population of approximately 19,000, producing an estimated wastewater flow of 1.4 million gallons per day. Beyond this point, the city will need to consider a new wastewater treatment plant or the possibility of joining a regional system such as the City of Turlock. This option would require construction of a new pipeline to a regional connection point, possibly up to 20 miles, in order to connect to a regional system.

The city has completed a Storm Drain Master Plan and begun the process of providing to new and upgraded drainage facilities that comply with federal and state storm water discharge requirements.

***G. Secondary Impacts:***

As a result of these regulatory standards, it is expected that there will be an increase in the cost of construction and development. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city. Another secondary impact of general plan implementation is that with the conversion of agricultural land to urban uses, there will be a transfer of allocated agricultural water to urban uses as well. This long-term shift in water use will be irreversible.

***3.9.3 Mitigation Measures***

As part of the city's development review program, individual development projects are required to prepare plans and studies that address drainage and erosion control and obtain "can-and-will-serve" permits for water prior to approval of any development permit or issuance of a development construction permit. As a result of this process, specific project level conditions can be required as part of the project's approval.

Beyond the above described process, no mitigation is proposed or required as there are no significant adverse impacts likely to result from the adoption and implementation of the City of Waterford General Plan Update. Development that is proposed within the city will be required to comply with federal, state and regional water quality standards.

***3.9.4 Level of Significance After Mitigation***

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Projects that are undertaken in a manner that is consistent with the policies and standards of the City of Waterford General Plan Update and comply with all appropriate federal state and regional water quality and water resource/supply regulations will not result in the creation of a significance adverse physical impact on hydrology and water quality.

## ***Section 3.10***

### ***Land Use and Planning***

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This environmental issue focuses on the impacts of a project on adopted land use, habitat conservation or natural community conservation plans. The specific focus of this area of environmental concern is potential project conflicts with established plans and policies or the potential for the project to physically divide a community area.

#### ***3.10.1 Environmental Setting***

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California planning law requires that consistency be maintained between various planning requirements that exist within the state. The city's general plan must be internally consistent. Zoning, subdivision and other development proposals and policies must be consistent with the general plan. As a practical matter, conflicts sometimes occur between various local and regional planning efforts. These conflicts are resolved as part of the normal public processes involved in the drafting and implementation of these public policy documents and development strategies.

The Waterford General Plan is developed within the context of the Stanislaus County General Plan and also the Sphere of Influence for the City of Waterford as developed and adopted by the Stanislaus County Local Agency Formation Commission (LAFCo).

Within the city's general plan, existing and proposed uses are evaluated within the context of existing planning policy (local, county and LAFCo) and reasonably expected need. In this regard, great effort goes into maintaining the integrity of existing communities and/or neighborhoods. To assure that new growth and development does not physically divide a community or neighborhood, land use policy and distribution is closely linked to the infrastructure plans for the city; this is particularly true with respect to the designation of new street and highway corridors.

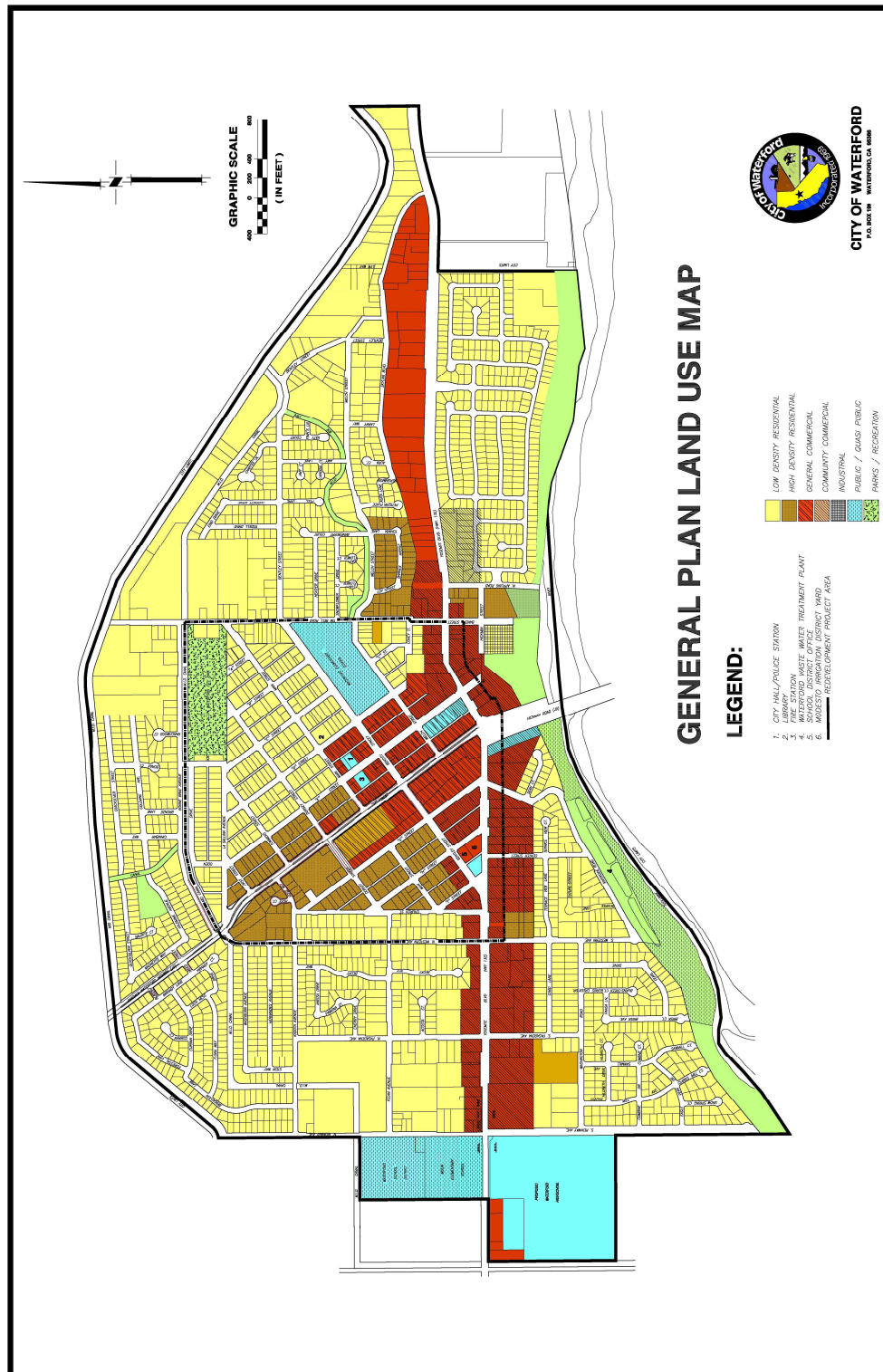
The Land Use Chapter of the city's general plan proposes that new growth and development occur in a pattern that supports existing patterns of land use within the city as depicted on Exhibit 3.10.1 and 3.10.2.

#### ***Existing and Forecasted Future Conditions***

**Population Projections:** Population growth in the study area will come from a combination of build-out (maximum utilization of available space) within current city limits and growth in the annexation area. Current population within the present (2005) city limits is approximately 8,000 people. The annexation area is currently undeveloped with no significant population; however, growth is anticipated to occur in the near future as new developments are constructed. For the purposes of this assessment, two separate approaches were taken to determine population projections for the city:

- A "Low Growth" Scenario based on California Department of Finance forecasts for Stanislaus County; and

Figure 3.10.1  
City of Waterford General Plan  
Existing Land Use Map





- A “High Growth” Scenario based on projected land use type and residential densities

**Low Growth Scenario** The State of California Department of Finance has produced growth forecasts for the state and its 58 counties out to the year 2040. Using a technique known as “shift-share analysis” the Stanislaus County growth forecast determined an approximate proportion of this 2040 population forecast that is likely to reside in the city of Waterford. Table 3.10.1 below depicts the past and expected future population growth level for the city of Waterford.

As shown in Table 3.10.1, the city of Waterford has grown at a faster rate than the county of Stanislaus between 1990 and 2000. This trend is expected to continue as has been factored into the “shift-share” forecast for the city. As a result of this analysis, the city of Waterford is expected to have a population of 10,393 people by the year 2010 and a population of nearly 19,000 by the year 2040.

**Table 3.10.1**  
**Past and Expected Future Population**  
**Low Growth Level for the City of Waterford**

	Year					
	1990	2000	2010	2020	2030	2040
Stan. Co.	375,089	459,025	585,519	708,950	846,998	998,906
Waterford	4,771	6,924	10,393	13,158	15,881	18,979
% of Co.	1.27%	1.51%	1.78%	1.86%	1.88%	1.90%

Source: Calif. Dept. of Finance & city Staff

**High Growth Scenario** The “High Growth” population projection scenario, presented in Table 3.10.2, is based on land use type and assumed residential densities for the undeveloped area. This scenario is consistent with the methodology used to develop population projections for the *2005 Urban Water Management Plan* and includes the following assumptions:

- Buildout within the present city limits will be 10,400 people, and is estimated to occur by 2040.
- Development within the annexation area will have a residential density of 4.5 dwelling units (DUs) per acre at 3 persons per DU, which is consistent with the assumptions used in the other planning documents developed for the city. With 1,316 acres of low density residential land use type for the annexation area, this equates to a total population of approximately 17,800.
- Buildout within the annexation area will also occur by 2040, representing a total buildout population of the city (including annexed areas) of 28,200.
- Rate of growth will be linear.

**Table 3.10.2**  
**High Growth Population Estimates**  
**Population Projections**  
**Year Present City Limits Annexation Area Total**

<b>Year</b>	<b>Present city Limits</b>	<b>Expanded SOI Area</b>	<b>Total</b>
2005	7,800	0	7,800
2010	8,200	2,500	10,600
2015	8,600	5,000	13,300
2020	9,000	7,500	15,900
2025	9,400	10,000	18,600
2030	9,800	12,500	21,300
2035	10,200	15,000	25,200
2040	10,400	17,800	28,200

**Table 3.10.3**  
**Comparison of Population Projections**  
**for**  
**“Low Growth Scenario”**  
**and**  
**“High Growth Scenario”**

<b>Year</b>	<b>“Low Growth” Population Projection</b>	<b>“High Growth” Population Projection</b>
2005	7,800	7,800
2010	10,400	10,600
<b>2015</b>	<b>11,800</b>	<b>13,300</b>
2020	13,200	15,900
2025	14,600	18,600
2030	15,900	21,300
2035	17,500	25,200
<b>2040</b>	<b>19,000</b>	<b>28,100</b>

At present, the city of Waterford occupies approximately 1.73 square miles of land area or about 1,108 acres. Based on historic land use trends, approximately 46% of this land area was developed with residential uses in the year 2000 and only 32% was developed residentially in the year 1990. The balance of the land was used for other land uses (commercial/industrial/public) or infrastructure (roadways, canals, public buildings, etc.) Some of this area was vacant land that was available for development.

***Future Growth Area Need***

Recent trends have resulted in a rapid depletion of the city’s inventory of vacant developable residential land. Table 3.10.4 depicts the potential number of residential units, by type, based on the current household population size of 3.47 people per residential unit.

**Table 3.10.4  
Past and Expected Future Housing Unit  
Growth for the City of Waterford**

	Housing Units					
	1990	2000	2010	2020	2030	2040
SFR	1,169	1,696	2,546	3,223	3,890	4,649
MDR	38	56	84	106	128	153
HDR	168	243	365	463	558	667
Total	1,375	1,995	2,995	3,792	4,577	5,470

Source: city Staff

**Table 3.10.5  
Past and Expected Future Residential Land Use  
Need for the City of Waterford**

	Acres					
	1990	2000	2010	2020	2030	2040
SFR	292	424	636	806	973	1,162
MDR	5	7	10	13	16	19
HDR	11	16	24	31	37	44
Total	308	447	671	850	1,026	1,226

Within these two tables, “SFR” represents “single-family residential” or the standard “R-1” type of development with one single-family residential unit on a 6,000 square foot lot. The symbol “MDR” represents “medium-density residential” and “HDR” represents “high-density residential” type development. Table 3.10.6 reflects the expected total land area that would be required to maintain the residential land area ratios of the city for 1990 (32%) and 2000 (46%).

**Table 3.10.6  
Total Necessary Land Area to Support  
Future Growth for the City of Waterford**

	Total		Land (Acres)		Area	
	1990	2000	2010	2020	2030	2040
46%	734	952	1,428	1,808	2,183	2,919
32%	963	1,398	2,098	2,656	3,206	3,831

Utilizing this methodology, it is projected that the city of Waterford’s urban area will require between 2,900 and 3,800 acres of urban area to support the forecasted population level. This methodology implies that the city desires to maintain its present ratios of urban land use with ample “development” area to maintain price stability in its land values. This methodology also assumes that residential lot sizes are going to remain relatively stable and that economic and demographic pressures will continue to drive population growth rates at historic rates. This land use model, for example, does not



contemplate very-low density or “ranchette” types of residential development, but is flexible and can respond to changing economic and demographic forces.

If the city were to contemplate the large (1/2 to 1-acre lot) type of development, this type of residential density would consume nearly four-times the land area required for under the single-family (6,000 square foot lot) type of development. If this type of density were determined to be desirable in the city of Waterford, the city’s land use plan should use the upper estimate of required land area (3,800 acres in 2040).

***Commercial & Industrial Growth***

In December of 2003, the City of Waterford contracted with a firm, Applied Development Economics (ADE), to prepare an economic analysis for the city that would identify future potential for commercial and industrial expansion in the city and the prospects for job growth. As a result of this study, it was concluded that economic and job growth in the city was tied to the potential residential growth that was occurring in the city and the region.

It is estimated that Waterford business establishments employed 746 people within the city limits and surrounding unincorporated areas within zip code 95386 based on data for 2002. Service sector establishments generate approximately 312 jobs, or 42 percent of all jobs in Waterford. Retail trade establishments create 240 jobs, or 32 percent of all Waterford jobs. The remaining economic sectors create no more than 70 jobs, and are a relatively insignificant component of Waterford’s economy as displayed in Table 3.10.7.

**Table 3.10.7  
Employment by Industry in Stanislaus County and Waterford  
2002**

	<b>Waterford</b>		<b>Stanislaus County</b>	
Agriculture & Mining	22	3%	14,200	9%
Construction	67	9%	10,600	6%
Manufacturing	5	1%	22,500	14%
Transportation, Warehousing, Utilities	25	3%	4,400	3%
Wholesale Trade	9	1%	5,600	3%
Retail Trade	240	32%	21,600	13%
Fire	22	3%	7,400	4%
Services	312	42%	53,800	33%
Government	44	6%	25,300	15%
<b>Total</b>	<b>746</b>	<b>100%</b>	<b>165,400</b>	<b>100%</b>

Source: Dun & Bradstreet Marketing Solutions, 2003, EDD Official  
California Employment Figures

In comparison to Waterford, Stanislaus County has a more diversified economy. The services sector generates only 33 percent of Stanislaus County jobs. Retail trade establishments create approximately 13 percent of Stanislaus County’s jobs. Government is a significant component of the Stanislaus County economy, with 15 percent of all jobs.

Moreover, there is actually a manufacturing sector, heavily weighted toward food processing, which generates approximately 22,500 jobs, or 14 percent of all county jobs. In comparison, Waterford's manufacturing establishments create only 5 jobs.

The data presented in Table 3.10.7 displays the Stanislaus County employment gains between 1995 and 2002. These gains are a measure of Waterford's potential job growth during the past seven years. That is, Stanislaus County's economy gained more than 27,000 jobs between 1995 to 2002, which amounts to a 20 percent gain in total jobs.

The services sector expanded by 13,300 jobs, for more than a 32 percent gain of employment during the seven year period. The construction sector created 4,700 new jobs in Stanislaus County between 1995 and 2002, which amounted to a 79 percent job growth gain.

The retail trade sector created 4,200 new jobs for a 24 percent job growth gain. Government in Stanislaus County provided more than 25,000 jobs; an overwhelming majority (22,200) is attributed to local government payrolls. Over the last several years, Stanislaus County has recorded growth in the civilian labor force as well as growth in total industry employment.

Wholesale trade created 1,500 new jobs between 1995 and 2002. Lastly, Stanislaus County's manufacturing sector actually lost 300 jobs between 1995 and 2002, and is the only economic sector that lost jobs during the past seven years, as shown in Table 3.10.8.

**Table 3.10.8  
Growth of Employment by Industry, Stanislaus County  
1995 – 2002**

<b>Industries</b>	<b>1995</b>	<b>2002</b>	<b>Absolute Change 1995- 2002</b>	<b>Percent Change 1995- 2002</b>	<b>Growth Rate</b>
<b>Total</b>	<b>137,700</b>	<b>165,400</b>	<b>27,700</b>	<b>20.1%</b>	<b>2.7%</b>
Agriculture & Mining	13,700	14,200	500	3.6%	0.5%
Construction	5,900	10,600	4,700	79.7%	8.7%
Manufacturing	22,800	22,500	-300	-1.3%	-0.2%
Transp., Warehousing, Util.	3,900	4,400	500	12.8%	1.7%
Wholesale Trade	4,100	5,600	1,500	36.6%	4.6%
Retail Trade	17,400	21,600	4,200	24.1%	3.1%
FIRE	6,800	7,400	600	8.8%	1.2%
Services	40,500	53,800	13,300	32.8%	4.1%
Government	22,600	25,300	2,700	11.9%	1.6%

Source: Applied Development Economics, based on data from California Employment Development Department, Labor Market Information, 1990-1999

***Taxable Retail Sales Receipt Trends***

From 1997 to 2002, Waterford experienced slower growth of taxable retail sales receipts than the neighboring cities of Modesto and Oakdale and all of Stanislaus County as shown in Table 3.10.9. Waterford's taxable sales receipts amounted to \$16.9 million in 1997 and expanded to \$19.4 million by 2002, for a 14 percent increase. In comparison, Oakdale's taxable sales receipts expanded by 26 percent between 1997 and 2002; Modesto's taxable sales receipts expanded by 39 percent; and there was a 49 percent expansion of taxable sales receipts throughout Stanislaus County. The gains in Waterford's taxable retail sales receipts were relatively slow and, at the same time, Waterford experienced higher rates of population and household formation growth than its regional neighbors and Stanislaus County. These trends indicate that Waterford is falling behind its regional competitors for retail sales.

**Table 3.10. 9  
Taxable Sales and Change in Stanislaus County  
1997 – 2002**

	<b>1997</b>	<b>2002</b>	<b>Change</b>	<b>Percent Change</b>
Stanislaus County	\$2,683,524,000	\$4,006,852,000	\$1,323,328,000	49%
Waterford	\$16,909,000	\$19,352,000	\$2,443,000	14%
Oakdale	\$124,199,000	\$155,928,000	\$31,729,000	26%
Modesto	\$1,407,911,000	\$1,954,794,667	\$546,883,667	39%

Source: California State Board of Equalization Taxable Sales Report, 1997 & 2001, calculations by ADE.

***Waterford's Labor Force Characteristics and Commute Patterns***

There are 2,450 persons in Waterford's labor force as of 2003. Of this, 2,090 are employed, leaving a 14.7 percent unemployment rate in Waterford as shown in Table 3.10.10. Thus, Waterford's unemployment rate is higher than neighboring Oakdale's unemployment rate of 10.8 percent, Modesto's 9.3 percent unemployment rate, or the county's unemployment rate of 10.4 percent. Essentially, unemployment remains persistently high in Waterford despite a general decline of the unemployment rate between 1990 and 2003.

**Table 3.10.10  
Employment and Unemployment in Waterford, Oakdale,  
Modesto and Stanislaus County, 1990 - 2003**

	<b>Labor Force</b>		<b>Employed</b>		<b>Unemployed</b>		<b>Unemployment Rate</b>	
	<b>1990</b>	<b>2003</b>	<b>1990</b>	<b>2003</b>	<b>1990</b>	<b>2003</b>	<b>1990</b>	<b>2003</b>
Waterford	2,030	2,450	1,690	2,090	340	360	16.6%	14.7%
Oakdale	5,810	7,070	5,100	6,310	710	760	12.2%	10.8%
Modesto	82,380	100,460	73,690	91,160	8,690	9,300	10.5%	9.3%
Stanislaus County	181,100	220,500	159,700	197,600	21,400	22,900	11.8%	10.4%

Source: State Of California Employment Development Department Labor Market Information Division Labor Force Data For Sub-county Areas, 1990 Annual, November 2003.

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### ***Commute Patterns***

Data in Table 3.10.11 indicates that there were 271 Waterford residents who worked in the community during 1990. By 2000, there were 361 residents working in Waterford, which means that 90 new jobs were created for local residents, or a gain of 33.2 percent. The data also indicates that the creation of local jobs in Waterford fell far behind the expansion of Waterford's labor force, as there was a gain of 995 residents that commuted to work outside of Waterford between 1990 and 2000. Essentially, for every new job created in Waterford there were 10 residents that commuted elsewhere to work. The trend clearly suggests that Waterford is becoming a bedroom community.

In comparison, there were 357 new jobs created for Oakdale's residents between 1990 and 2000. Given Oakdale's larger job base, the gains of job creation for local residents amounted to 17.8 percent, which was significantly slower than the percent gain in Waterford. The data also indicates that Oakdale's job creation also fell behind the expansion of its labor force, as there was a gain of 1,349 residents that commuted to work outside of Oakdale between 1990 and 2000. For every job created in Oakdale between 1990 and 2000 there were five residents that moved to Oakdale and commuted elsewhere to work. The data also suggests that Oakdale is becoming a bedroom community, but the trends are less dramatic in Oakdale than they are in Waterford.

**Table 3.10.11  
Commuting Characteristics of Waterford and Oakdale's Workforce  
1990 to 2000**

	1990	2000	Change 1990 - 2000	Percent Change
<b>Worked in Place of Residence</b>				
Waterford	271	361	90	33.2%
Oakdale	2,003	2,360	357	17.8%
<b>Commuted Outside the Community for Employment</b>				
Waterford	1,265	2,260	995	78.7%
Oakdale	2,681	4,030	1,349	50.3%

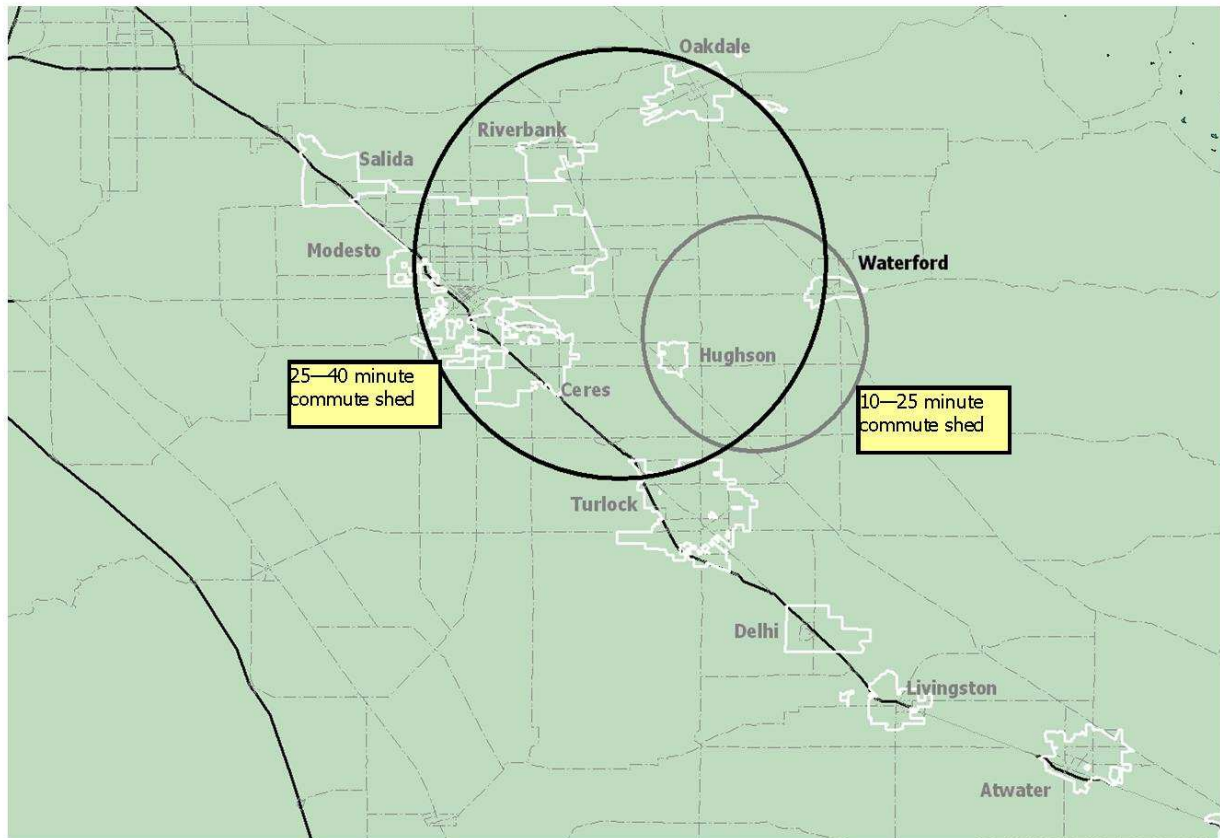
Source: Applied Development Economics, Data Based on U.S. Census

Data in Table 3.10.12 indicates that 37.7 percent of Waterford's workforce commuted between 25 and 40 minutes to work in 2000. Workers that commute between 25 and 40 minutes would travel to employment centers in Modesto, Ceres, and Turlock as shown in Figure 3.10.3. Another 29.6 percent of the workforce commutes between 10 and 25 minutes, which means their commute would not stretch to Modesto. Lastly, 16.4 percent of Waterford's workforce commutes to work for more than 40 minutes.

Commute times for Waterford residents appear to have lengthened since 1990 when 42.8 percent of the workforce commuted to work between 10 and 24 minutes, and only 8.4 percent of the workforce commuted to work for more than 40 minutes. Only 13.7 percent of Waterford's workforce worked locally and, thus, did not commute.

**Figure 3.10.3  
Waterford Commute Sheds  
By Typical Time of Commute**

**Figure 1  
Waterford Commute Sheds**



Source: ADE, Inc based on 2000 Census

The rate of Waterford's workers that work locally has remained relatively unchanged since 1990 when 11.7 percent of the workforce did not commute.

In comparison to Waterford, the commute patterns of Oakdale's workforce remained relatively unchanged between 1990 and 2000. Approximately one-fourth of Oakdale's workforce also work in Oakdale and do not commute. The number of Oakdale workers that commute more than 40 minutes to work expanded slightly from 15.4 percent to 19.7 percent. The remaining commute to work patterns was relatively unchanged.

**Table 3.10.12  
Waterford and Oakdale Commute Times  
1990 and 2000**

<b>Commute Time</b>	<b>1990</b>	<b>Percent Total 1990</b>	<b>2000</b>	<b>Percent Total 2000</b>	<b>Change 1990 - 2000</b>	<b>Percent Change 1990 - 2000</b>
<b>Waterford</b>						
Worked Local	179	11.7%	359	13.7%	180	101%
10 - 24 Minutes	659	42.9%	776	29.6%	117	18%
25 - 39 Minutes	524	34.1%	989	37.7%	465	89%
40 or more Minutes	129	8.4%	429	16.4%	300	233%
Worked at home	45	2.9%	68	2.6%	23	51%
<b>Total</b>	<b>1,536</b>		<b>2,621</b>		<b>1,085</b>	<b>71%</b>
<b>Oakdale</b>						
Worked Local	1,304	27.8%	1,628	25.5%	324	20%
10 - 24 Minutes	1,409	30.1%	1,842	28.8%	433	24%
25 - 39 Minutes	1,142	24.4%	1,490	23.3%	348	23%
40 or more Minutes	720	15.4%	1,261	19.7%	541	43%
Worked at home	109	2.3%	169	2.6%	60	36%
<b>Total</b>	<b>4,684</b>		<b>6,390</b>		<b>1,706</b>	<b>27%</b>

Source: U.S. Census 1990, 2000

### ***Waterford's Labor Force Occupations***

Matching jobs to the occupational skills of residents will be important if Waterford wants to attract jobs that also reduce the needs of the local workforce to commute long distances. Thus, new job creation in Waterford should seek to match the skills of local residents that are currently commuting to work outside of the community. The data in Table 3.10.13 indicates that Waterford's labor force expanded from 1,599 workers in 1990 to 2,669 workers in 2000. The number of management and professional workers living in Waterford expanded by 397 persons, and comprised 22 percent of the workforce in 2000 compared to 12 percent of the workforce in 1990. Conversely, the number of Waterford workers engaged in farming and production occupations actually declined from 1990 to 2000.

**Table 3.10.13**  
**Labor Force Occupations in Waterford and Stanislaus County**  
**1990 - 2000**

Occupational Category	1990	Percent of Total 1990	2000	Percent of Total 2000	Change from 1990 - 2000	Percent Change
Management, business, & financial operations	192	12%	589	22%	397	207%
Service	267	17%	378	14%	111	42%
Sales & office	367	23%	543	20%	176	48%
Farming, fishing, & forestry	225	14%	210	8%	-15	-7%
Construction, extraction & maintenance	N/A	N/A	325	12%	N/A	N/A
Production	344	22%	336	13%	-8	-2%
Transportation & material moving	204	13%	288	11%	84	41%
<b>Total</b>	<b>1,599</b>	<b>100%</b>	<b>2,669</b>	<b>100%</b>	<b>1,070</b>	<b>67%</b>

Source: U.S. Census, 1990 and 2000

#### ***Wages Earned by Waterford's Labor Force***

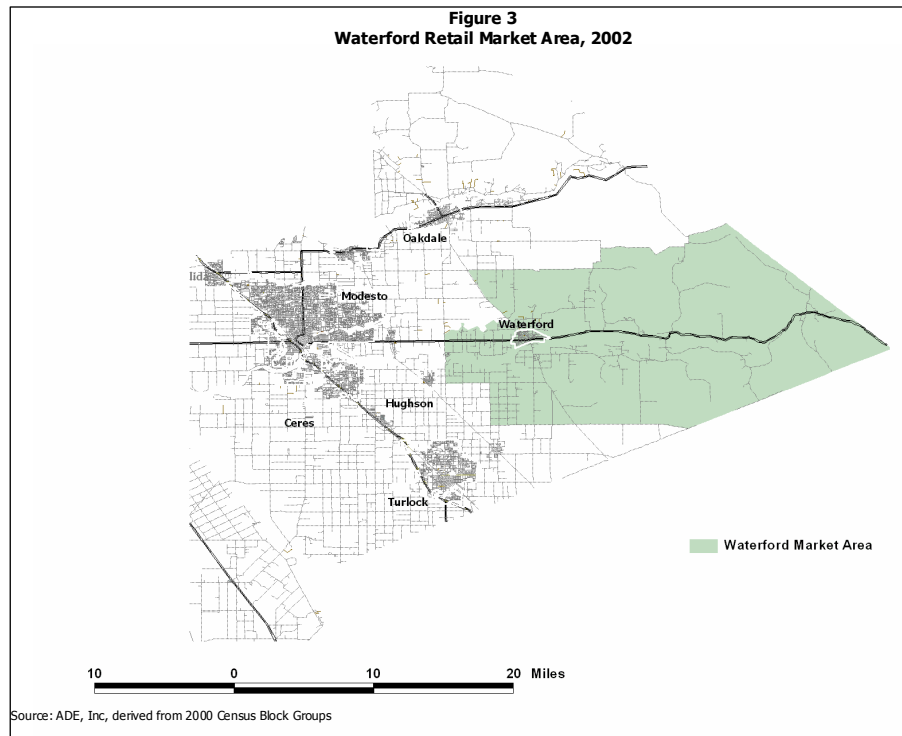
Lastly, data in Table 3.10.14 indicates that the expanding numbers of management and professional people in Waterford may be contributing to the community's overall income gains. That is, the average wage paid to management and professional workers throughout Stanislaus County amounts to \$72,200— double the wages paid to any other occupational category. For example sales occupations, Waterford's second largest occupational category, pays an average salary of only \$26,500. Service occupations pay only \$37,000, and so on. This data indicates that Waterford should seek to attract professional service firms that will reduce the commuting needs of Waterford's relatively high earning management and professional workers.

**Table 3.10.14**  
**Wages for Waterford Labor Force, 2003**

Occupational Category	Waterford Labor Force	Stanislaus County Mean Annual Wage
Management, business, & financial operations	589	\$72,244
Service	378	\$37,042
Sales & office	543	\$26,547
Farming, fishing, & forestry	210	\$16,618
Construction, extraction & maintenance	325	\$36,765
Production	336	\$26,266
Transportation & material moving	288	\$25,126
	<b>2,669</b>	

Source: U.S. Census, 2000, State Of California Employment Development Department Labor Market Information Division

**Figure 3.10.4**  
**City of Waterford Retail Market Area-2002**



***Waterford's Current Market Potential to Expand Jobs***

Waterford's economy is dominated by the retail and services sectors. The community's potential to attract new retail and non-retail commercial jobs are described below. Due to the city's limited access to rail, air or the intra-state or inter-state highway network, traditional manufacturing, warehousing and similar industrial employment growth is extremely limited.

***Waterford's Retail Job Creation Potential***

Waterford's potential to attract more retail jobs will relate to the population and residential growth rates, the ability of local entrepreneurs to capture the spending of area residents, and the ability to compete with the regional shopping centers and big box retailers. Accordingly, the analysis below estimates that Waterford could have an additional 92 retail jobs if the retailers and community were successful at retaining its maximum potential to capture spending leakages as described below.

***Waterford's Capacity to Capture Spending Leakages***

Waterford retailers serve residents of the city, travelers along Highway 132, and the unincorporated areas around the city as shown in Figure 3.10.4. The defined market area for Waterford has a population of more than 12,000 persons in 3,788 households. Customers of Waterford's retailers that live outside the city limits have household incomes that average \$66,500, compared to the \$50,600 average household incomes of Waterford residents.



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**Table 3.10.15**  
**Waterford Retail Sales, Leakage and Expansion Potential, 2002**

<b>Retail Group</b>	<b>Market Area Household Spending (1)</b>	<b>Taxable Sales (2)</b>	<b>Actual Sales (3)</b>	<b>Estimated Sales Leakages (4)</b>	<b>Regional Capture (5)</b>
<b>TOTAL</b>	<b>\$65,675,400</b>	<b>\$19,352,968</b>	<b>\$33,887,376</b>		
<b>Apparel Stores</b>	<b>\$3,898,406</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,898,406</b>	
Women's Apparel	\$878,035			\$878,035	
Men's Apparel	\$317,880			\$317,880	
Family Clothing	\$1,943,303			\$1,943,303	
Shoe Stores	\$759,187			\$759,187	
<b>General Merchandise Group</b>	<b>\$11,458,288</b>	<b>\$2,903,174</b>	<b>\$3,380,676</b>	<b>\$8,077,611</b>	
Department & Discount Stores	\$6,359,146		*	*	
Other General Merchandise	\$3,203,238		*	*	
Drug & Proprietary Stores	\$1,895,903		*	*	
<b>Specialty Retail Group</b>	<b>\$4,521,021</b>	<b>\$538,243</b>	<b>\$544,111</b>	<b>\$3,976,911</b>	
Gifts & Novelties	\$356,568		26,223	\$330,345	
Sporting Goods	\$489,327		26,223	\$463,104	
Florists	\$115,094		26,223	\$88,871	
Photographic Equipment	\$58,208		0	\$58,208	
Records & Music	\$260,958		0	\$260,958	
Books & Stationery	\$311,970		0	\$311,970	
Office Supplies/Computer Equipment	\$774,009		0	\$774,009	
Jewelry	\$448,824		26,223	\$422,602	
Other Specialty Retail	\$3,115,877		439,220	\$1,266,844	
<b>Food, Eating &amp; Drinking</b>	<b>\$18,049,858</b>	<b>\$7,288,458</b>	<b>\$20,707,940</b>		
Grocery Stores	\$11,858,528		\$17,843,848	\$0	\$5,985,321
Specialty Food Stores	\$366,875		*	\$366,875	
Liquor Stores	\$514,614		\$0	\$514,614	
Eating Places	\$5,309,842		\$2,864,091	\$2,445,751	
<b>Building Materials &amp; Home Furnishings Group</b>	<b>\$6,430,348</b>	<b>\$31,013</b>	<b>\$31,038</b>	<b>\$6,399,311</b>	
Furniture & Home Furnishings	\$2,801,171		\$0	\$2,801,171	
Household Appliances & Electronics	\$1,159,553		\$0	\$1,159,553	
Used Merchandise	\$177,619		\$15,519	\$162,100	
Building Material & Home Centers	\$2,292,005		\$15,519	\$2,276,486	
<b>Automotive Group</b>	<b>\$21,317,479</b>	<b>\$8,592,080</b>	<b>\$9,223,612</b>	<b>\$12,093,867</b>	
New Cars & RVs	\$13,762,372		\$0	\$13,762,372	
Used Car Dealers	\$999,345		*	*	
Gasoline Service Stations	\$5,640,227		*	*	
Auto Parts & Accessories	\$3,712		*	*	
Mobile Homes & Trailers	\$499,070		*	\$3,712	
Boats & Motorcycles	\$412,752		*	*	

Source: Applied Development Economics Retail Model derived from the Bureau of Labor Statistics Consumer Expenditure Survey, 1997 Economic Census, Urban Land Institute

Taxable Sales estimated by monthly reports supplied by the city benchmarked against the total taxable sales reported by the California State Board of Equalization

Data in Table 3.10.15 quantifies the current spending by households in the Waterford market area, the sales captured by established retail businesses, and the spending leakages that may possibly be retained by established retailers.

***Market Area Household Spending***

Data in column (1) estimates that Waterford residents spend \$65.7 million at various retail stores, and is a measure of spending demand that local stores can capture. Waterford households patronize local stores. But they also patronize stores at the big box centers and regional shopping malls outside the community, and outside the region when they travel to the Bay Area, southern California, or other urban centers.

The data indicates that Waterford households spend approximately \$3.9 million at specialty apparel stores. These would include large national chain stores such as Mervyn's or Ross, as well as small independent apparel stores that might locate in a vibrant downtown. Another \$11.5 million is spent at general merchandise stores. A great majority of that spending is captured by the Wal-Mart stores, which are located in Turlock, Ceres, and Modesto. Another \$4.5 million is spent at specialty retail stores such as jewelry, books, sporting goods, etc.

Approximately \$11.9 million is spent at grocery stores, including the Valley IGA supermarket and supermarkets located outside the community. Approximately \$5.3 million is spent at restaurants and fast food establishments. Approximately \$5 million is spent at furniture and household appliance stores. Another \$2.1 million is spent at hardware stores and building material suppliers such as the ACE Hardware store in Waterford and the Home Depot or Lowe's located in Turlock and Modesto. Lastly, Waterford residents spend nearly \$14.8 million on automobile purchases, and another \$5.6 million at gas stations.

***Sales Captured by Waterford Retailers***

Data in column (2) provides information on the amount of taxable sales earned by Waterford retailers. Accordingly, it is estimated that Waterford retailers earned \$19.4 million of taxable sales in 2002.

Data in column (3) estimates actual sales earned adjusted for the nontaxable sales of food and prescription drugs. The adjustment inflates the taxable sales by the average ratio of nontaxable to taxable products for an individual store type. It is estimated that Waterford merchants earned \$33.9 million in sales after adjusting for the sale of food and prescription drugs.

The actual sales data indicates that there are no Waterford apparel stores. The general merchandise store sales of \$3.4 million is limited to the local pharmacy, ACE Hardware, and other small stores that may have been categorized as a general merchandiser. There are very few small specialty retailers—such as an office supply store—and Waterford's specialty retail stores earn only \$540,000 of sales. Grocery store sales of \$17.8 million include sales earned by the Valley IGA and other small convenience stores in town. Waterford's restaurants and fast food establishments earn an estimated \$2.8 million of

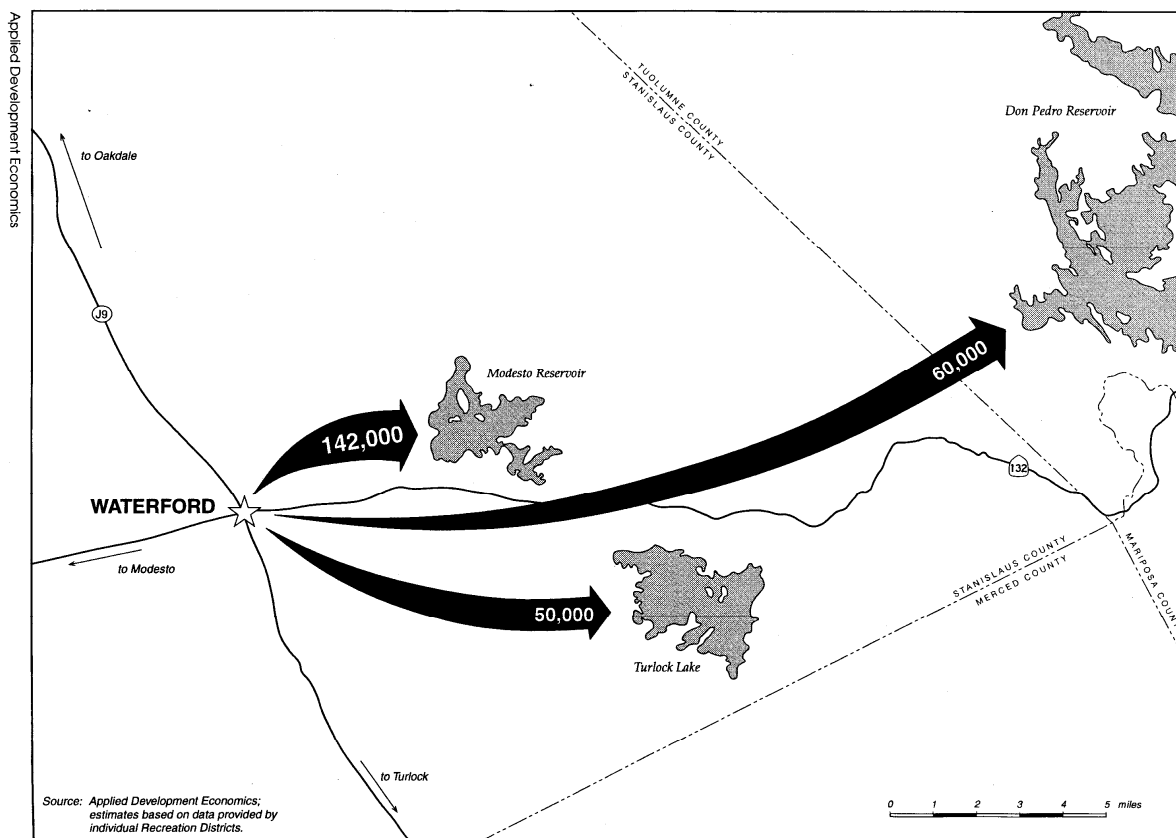
sales. The building materials store sales of only \$31,000 are limited to one or more small stores. The automotive sales of \$9.2 million include the auto parts stores and gas stations.

### ***Sales Leakages***

Data in column (4) quantifies sales leakage, which is a measure of the gap between household spending in the market area and retail sales captured by businesses located in Waterford. The sales leakages represent opportunities for established retailers to expand their existing sales, or for new retailers to be attracted to Waterford. The data indicates that there are sales leakages to be captured among all store types as described below.

- There is \$3.9 million of sale leakage in spending at apparel stores. The possibility of capturing the spending leakages will require attracting an apparel store since there are no apparel stores in Waterford.
- There is \$8.1 million of spending leakage among general merchandise stores. There is very little chance of reducing general merchandise spending leakages due to the presence of Wal-Mart and other nearby discount stores. The only possibility to reduce general merchandise spending leakages would be to expand the local pharmacy.
- Specialty retail store leakages range between \$312,000 for book stores to \$770,000 for office supply stores. The sales leakages are insufficient to attract national chain store retailers. So, capturing more specialty store spending leakages will require the attraction of small, independently owned businesses to Waterford. It may also be possible for established retailers to expand and capture specialty retail store leakages.
- There is \$2.4 million of eating and drinking establishment spending leakage. The spending leakages may be sufficient to attract fast food chains such as Burger King and McDonalds that average between \$1.1 and \$1.5 million of sales each year.
- There is \$2.8 million of spending leakage among furniture and home furnishing stores. This is a significant amount of leakages, but is not sufficient to attract a national chain store.
- There is \$1.2 million of spending leakage among household appliance and electronic stores. This may be sufficient to attract a franchise such as Radio Shack with average sales of less than \$700,000 per store.
- There is \$2.3 million of spending leakage among building materials and home center stores. The sales leakages are insufficient to attract Home Depot or similar retailers that earn more than \$50 million per store.
- Lastly, there is \$13.7 million of car sale spending leakage. There is insufficient traffic to attract car dealers to Waterford.

**Figure 3.10.5**  
**1995 Recreation Travel Data**



### ***Regional Sales***

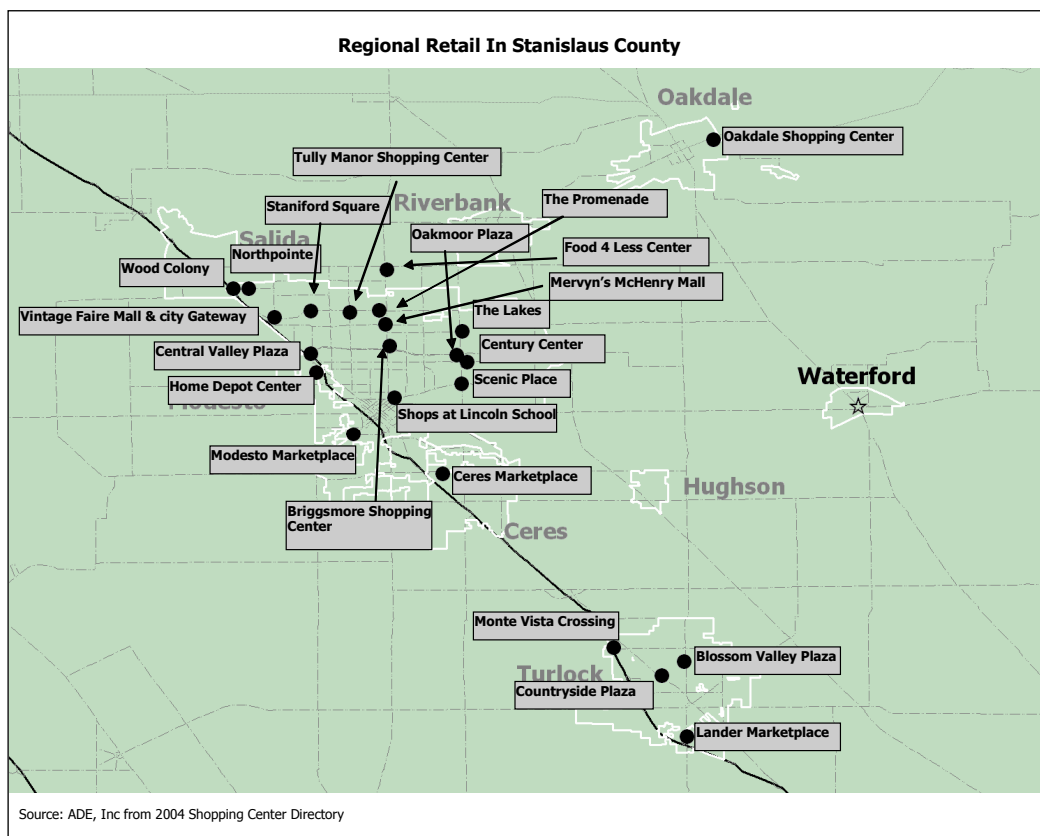
Waterford functions as a gateway to the water oriented recreational areas such as the Modesto Reservoir, Turlock Lake, Don Pedro Reservoir and ultimately Yosemite National Park. Accordingly, Waterford's grocery stores capture \$6 million of sales beyond the spending by market area residents as shown in Column (5). Household spending at grocery stores is estimated to be \$11.9 million. At the same time, all grocery stores, including convenience stores, earned \$17.8 million of sales.

It is likely that the excess capture by grocery stores is occurring due to purchases made by travelers and visitors to the Waterford area. Given Waterford's relatively isolated location as a potential retail destination, it is unlikely that other store types can capture visitor sales, although it may be possible to attract a motel to the community, and restaurants and fast food establishments could benefit from visitor spending.

### ***Waterford's Retail Competition***

Waterford's potential to expand its retail space and create new retail jobs relate to the ability of the community's established retailers to compete in the region, to capture regional spending, and to reduce spending leakages from the community. Waterford's competitive environment is greatly influenced by the community's proximity to shopping centers and big box retail establishments in nearby Turlock and Modesto.

**Figure 3.10.6  
Eastern Stanislaus County Regional Shopping Opportunities**



The Stanislaus County retail market is dominated by Modesto, which has a regional shopping center and other big box retail establishments. Major supermarket chains—Raley's, Save-Mart, Food Max, and Safeway—are all present in Modesto and Turlock as shown in Figure 3.10.6. In addition, many national retail chain stores are clustered near each other in strategic locations.

With many people commuting outside of Waterford for work, and with a smaller selection of retail, Waterford retailers have a difficult time competing for local residents' spending. Store type categories that necessitate buying—such as grocery stores and eating establishments—are doing well in Waterford, meaning that Waterford residents will support local retail.

Conversely, Waterford merchants have difficulty competing against destination big box retail outlets such as Wal-Mart and Home Depot. Often clustered together, big box retailers facilitate easy shopping with low cost. Unlike a grocery store that may be visited more than once a week, destination shopping is more conducive to weekend trips. For Waterford residents, they are most likely to frequent the large retailers in Modesto and Turlock.

**Table 3.10.16  
Waterford's Commercial Land Availability  
and Job Creation Potential**

	Residential Land	Commercial Land
<b>Total Land Zoned [acres]</b>	<b>617</b>	<b>108</b>
Developed Land [acres]	407.7	33.2
Current Employment		746
<b>Jobs/Acre</b>		<b>23.4</b>
Undeveloped Land [acres]	209.3	74.8
Job Creation Potential	0	1,681

Source: Applied Development Economics

***Retail Job Creation Potential***

If Waterford is able to attract new businesses that can capture spending leakages, then it would be possible to support up to 54,000 SF of new retail space. In general, the business opportunities will need to be absorbed by independent retailers who are already established in the central Valley, with the exception of a few national chain retailers such as Radio Shack or Burger King. Thus, it is estimated that the maximum capture rate of current retail spending leakages would generate 92 new retail jobs in Waterford. This is job creation that could occur immediately, and would not depend on future growth.

***Waterford's Non-Retail Job Creation Potential***

Waterford's ability to compete for a larger share of the new job creation occurring in Stanislaus County is constrained by the city's lack of financial resources, staff capacity, and effort to promote Waterford as a business destination. That is, Waterford could better compete for the more than 23,500 non-retail jobs created in Stanislaus County between 1995 and 2002.

Waterford's potential to compete for a larger share of the region's job growth is limited by its regional location, work force, and supply of competitively priced land that could be used for commercial development.

***Projected Demand for Retail Sales Space***

The data indicates that the capture of current spending leakages would generate a significant demand for new retail space. It is estimated that up to 38,500 sq. ft. of new retail space could be supported if spending leakages were retained. However, the ability to capture spending leakages assumes that there are entrepreneurs who can establish themselves in the community, compete with regional shopping centers and big box establishments, and generate a market niche that will allow them to effectively retain additional retail spending in Waterford.

***Future Demand Generated by Projected Population Growth***

The projected population and residential growth will create additional demand for consumer spending that Waterford retailers can capture. Data indicates that the projected growth will expand the market area spending from \$65.7 million to \$83.3 million by 2010. New housing units are projected to be developed between 2010 and 2020 which will expand the market area spending to \$103.8 million. Accordingly, Waterford could support an additional 14,600 SF of space by 2010, and an additional 21,000 SF of space by 2020 by capturing the new spending that will come to the market area that is not being captured by nearby big box competition.

***Projections of Demand for Commercial Land***

Data in Table 3.10.17 projects that Waterford's employment base will expand by only 100 jobs by 2010. Approximately 58 new jobs will be created in the services sector—25 retail jobs—and all other sectors will experience a growth of less than five jobs. Another 146 new jobs are projected for Waterford between 2010 and 2020. Again, the vast majority of new job creation is projected for the services sector, along with 36 new retail jobs.

**Table 3.10.17  
Employment Projections by Industry in Waterford 2003 - 2020**

	<b>Emp. 2003</b>	<b>Emp. 2010</b>	<b>Emp. 2020</b>	<b>Growth 2002 - 2010</b>	<b>Percent Growth 2002 - 2010</b>	<b>Change 2010- 2020</b>	<b>Percent Change 2010 - 2020</b>
Agriculture & Mining	22	22	22	0	0%	0	0%
Construction	68	73	82	5	8%	9	12%
Manufacturing	5	5	5	0	0%	0	0%
Transportation, Warehousing, Utilities	25	26	28	2	8%	1	5%
Wholesale Trade	9	10	11	1	13%	1	14%
Retail Trade	240	265	301	25	10%	36	14%
FIRE	22	24	27	2	11%	3	13%
Services	313	371	459	58	19%	88	24%
Government	44	49	57	5	13%	8	16%
<b>Total</b>	<b>746</b>	<b>846</b>	<b>962</b>	<b>100</b>	<b>13%</b>	<b>146</b>	<b>17%</b>

Source: Dun & Bradstreet Marketing Solutions, 2003, Woods & Poole Stanislaus County Profile 1970 - 2025

It is estimated that Stanislaus County will experience a growth of 46,400 new jobs by 2020. Therefore, there is significant regional job growth that Waterford can seek to attract, and it would be possible for Waterford to attract more than the 246 jobs projected by 2020. However, attracting additional jobs to Waterford will require the expenditure of public resources, and a committed effort by the public and private sector to make Waterford a more attractive business location.

Data in Table 3.10.16 translates current and projected employment into land use types as published by the Anderson land use code system. The data allows us to estimate that Waterford's commercial businesses occupy approximately 274,000 sq. ft. of space on 30.7 acres of land. It is estimated that retail businesses occupy 111,000 sq. ft. of space.

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Light manufacturing establishments are estimated to occupy 87,000 sq. ft. of space, service and professional establishments occupy 67,000 sq. ft. of office space, and distribution establishments occupy 8,000 sq. ft. of warehouse space. There are additional land uses such as schools, transportation facilities, and agriculture that account for approximately 231 jobs in Waterford, but do not occupy traditional commercial space building types.

In 2003, Waterford had 108 acres of land designated for commercial development. To date, only 33.2 acres of commercial land have been developed. Thus, 74.8 acres of commercially zoned land remain to be developed. The undeveloped commercial land could support up to 1,680 additional jobs, which would triple the community's job base if more businesses can be attracted to Waterford.

However, current market forces indicate that there will be a need for only 36,100 sq. ft. of new commercial space by 2010. There is a projected demand for approximately 11,600 sq. ft. of new retail space, 10,100 sq. ft. of office space, and 13,300 sq. ft. of light industrial space.

An additional 146 jobs created between 2010 and 2020 will require another 52,000 SF of new commercial space. There will be a need for approximately 16,700 SF of new retail space, 14,900 SF of new office space, and 18,600 SF of new light industrial space.

**Table 3.10.18  
Projected Demand for Commercial Land in Waterford,  
2003 to 2020**

	2003			2010		2020		2003 - 2010 Change		2010 - 2020 Change	
	Acres	S.F.	Number Emps	Acres	S.F.	Acres	S.F.	Acres	S.F.	Acres	S.F.
Retail Com.	14.4	111,360	240	15.9	122,960	18.1	139,664	1.5	11,600	2.2	16,704
Low-Rise Office	6.4	67,470	147	7.4	77,595	8.8	92,507	1.0	10,125	1.4	14,912
Light Manuf.	9.2	86,721	98	10.6	99,992	12.6	118,551	1.4	13,271	2.0	18,559
Warehouse	0.7	8,179	7	0.8	9,292	.9	11,127	0.1	1,113	0.1	1,836
Other Uses [a]	n/a	n/a	231	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Total Comm. Space</b>	<b>30.7</b>	<b>273,730</b>	<b>723</b>	<b>34.7</b>	<b>309,839</b>	<b>40.4</b>	<b>361,849</b>	<b>4.0</b>	<b>36,109</b>	<b>5.7</b>	<b>52,011</b>

Source: Applied Development Economics.

Note: Other Land Uses include motels, schools, hospitals, transportation, agriculture, and other uses that do not conform with building types

The projected commercial space that will be needed by 2020 means that Waterford is likely to absorb only 9.7 acres of the vacant commercial land. This will still leave more than 60 acres of vacant land that is currently zoned for commercial remaining to be developed. The very strong demand for housing will place significant pressure on the community's leadership to rezone the vacant commercial lands and absorb the demand for additional housing.



The city of Waterford's economy is dominated by commuters traveling to job centers in Modesto, Turlock, Oakdale, and other neighboring communities. Waterford is located on the periphery of Stanislaus County, which constrains the community's ability to attract retail and industrial businesses. Accordingly, the projected growth of jobs included in this report anticipates that Waterford will continue to capture only a small share of Stanislaus County's job growth.

Waterford lacks an industrial base and sites for either light industry manufacturing, assembly, or distribution. Waterford would have to invest in land sites and infrastructure in order to compete with its neighboring communities for a share of the region's light industrial growth.

Waterford may be able to attract business and professional service establishments that require office space. However, Waterford will have to compete with office markets in the urban centers of Turlock and Modesto that are generally more attractive to service businesses. Thus, Waterford will have to improve the supply of services offered to local businesses in order to better compete for the office market.

Waterford's opportunities to capture visitor spending are limited to travelers passing through the community on their way to the recreational destinations of Don Pedro Reservoir, Modesto Reservoir, and the Turlock Lake State Recreational Area. The number of potential visitors passing through Waterford is substantial, but is seasonally limited to the warm-weather months of May through September.

Waterford also lacks a critical mass of population required to expand retail services. The data enclosed in this report indicate that opportunities to expand retail services are limited to specialty retail and food services. The community currently lacks a sufficient population to support a second supermarket, home improvement center, general merchandise discount store, or automobile dealer but as population increases in the foreseeable future, new opportunities will be created.

The revitalization of Waterford's town center is also limited by the presence of a stale mix of businesses with unattractive physical spaces, little variation in the product lines offered, and the non-competitive management practices of many retailers in town.

Although there are many constraints to successful business attraction, there is significant demand to develop new housing in Waterford. The growth projections indicate that Waterford's vacant residential lands will be developed prior to 2020 if present trends continue into the future. Additional growth beyond the current general plan capacity will require Waterford to either expand the supply of residentially zoned land through annexations, or encourage more residential density.

#### ***Other Land Uses***

In addition to residential, commercial and industrial land, the urban landscape must include other uses such as public facilities (public buildings, schools, public works yards, etc.,) open-space and, in the case of Waterford, conservation areas for wildlife habitat,

water courses, riparian conservation areas, etc. These additional land uses make up the total urban fabric and must be accommodated within the city's urban area.

### ***3.10.2 Environmental Impacts***

Implementation of the general plan update may change existing land uses in portions of the planning area, particularly within the sphere of influence as properties are annexed. None of the contemplated changes, however, will physically divide an established community or neighborhood within the planning area. There are no habitat conservation or natural community conservation plans presently adopted and applied to lands located within the city's planning area.

#### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Land Use and Planning as follows:

##### ***Would the project:***

- Physically divide an established community?
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
- Conflict with any applicable habitat conservation plan or natural community conservation plan?

### ***ASSESSMENT OF COMMUNITY DIVISION***

#### **DEFINITION OF ISSUE**

A community is a particular area within which people with common interests reside. Typically, a "community" can be defined by a distinctive physical quality, attributes or features which set it apart from other communities or areas. The location of highways, greenbelts or other physical barriers that separate a "community" can cause economic and social dislocation and disrupt the efficient delivery of community services.

#### **DEFINITION OF TERMS**

*Division* is likely to occur within a defined community where the creation of some obstacle to normal circulation and/or communication within that community is created (i.e. a major roadway or highway, wall, fence, rail corridor, etc).

*Obstacle to Normal Circulation* would be created when normal pedestrian traffic patterns are disrupted and/or residential areas are separated from their normal access to service or employment centers, parks, playgrounds and other community open space areas.

#### **THRESHOLD CRITERIA:**

Conformance with an adopted general plan, specific plan or other plan regulating land use and community circulation would normally assume that an impact on community division will not result. Specific project design details need to be evaluated to assure that

community division does not occur as a result of project implementation.

***ASSESSMENT OF CONSISTENCY WITH GENERAL PLAN  
ENVIRONMENTAL GOALS, POLICIES AND PROGRAMS***

**DEFINITION OF ISSUE**

General plan environmental goals, policies and programs means the general plan (including area and specific plans) goals, policies and programs designed to protect the environment (e.g., preservation or conservation of resources, avoidance of hazards, etc.). As such, not all general plan goals, policies and programs are designed to protect the environment.

**DEFINITION OF CONSISTENCY**

The California attorney general has opined that the term “consistent with” is used interchangeably with “conformity with” (58 OPS. Cal. Atty. Gen. 21, 25 (1975). A general rule for consistency determinations can be stated as an action, program, or project is consistent with the plan if, considering all its aspects, it will further the objectives and policies of the plan and not obstruct their attainment.

**THRESHOLD CRITERIA**

Any project that is inconsistent with a specific environmental policy of the general plan is considered to have a significant impact.

***ASSESSMENT OF CONSISTENCY WITH A HABITAT CONSERVATION PLAN***

**DEFINITION OF ISSUE**

A Habitat Conservation Plan is a plan for the conservation, preservation and protection of the habitat of a species or a number of environmentally protected wildlife species. The goals, policies and programs contained in the Habitat Conservation Plan are established on the basis of scientific knowledge of the species and its habitat needs and adopted by federal, state and/or local jurisdictions for the protection of sensitive wildlife species.

**THRESHOLD CRITERIA**

Any project that is inconsistent with a Habitat Conservation Plan is considered to have a significant impact.

***B. Potential Significant Impacts:***

***Land Use and Planning Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city’s general plan implementation, the following aspects of a potential land use and planning impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Physically divide an established community?*

The proposed general plan does not propose to physically divide any portion of the community or any of the neighborhoods within the community in such a manner as to create an adverse physical impact on the environment. New streets and roadways will

include pedestrian facilities as required through the normal development review process. Community access to services and employment centers are subject to development permit review.

- *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance adopted for the purpose of avoiding or mitigating an environmental effect?*

The proposed general plan is the primary urban planning document for the City of Waterford. The policies of the plan, with respect to urban limits, will need to be reconciled with the Stanislaus County General Plan and the policies of LAFCo with respect to urban limit lines and the Sphere of Influence. This is a normal public process between cooperating public agencies as set forth in state law. There are no other plans or policies, either adopted or contemplated, that could conflict with the Waterford General Plan.

- *Conflict with any applicable habitat conservation plan or natural community conservation plan?*

There are not habitat conservation plans or natural community conservation plans in place or contemplated within the urban area of the city of Waterford.

*Land Use and Planning Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, a potential land use or planning impact is not likely to result in a significant adverse environmental impact from plan adoption and/or implementation.

***C. Proposed General Plan Goals & Policies:***

The goals and policies that follow reflect the city's desire for a balanced community that is economically viable, provides for a variety of housing needs, and retains both its agricultural and small town character.

**Overall Goals for Land Use**

**Goal Area- Land Use ( L-1): Residential & Neighborhood Development**

Housing Opportunities in Balance with Jobs Created in the Waterford Urban Area.

A Wide Range of Residential Densities and Housing Types in the city.

Preservation and Enhancement of Existing Neighborhoods.

Quality Residential Environments

Pedestrian-Friendly Residential Environments

A Sense of Community

**Policies**

- L-1.1** Promote balanced development which provides jobs, services and housing.
- L-1.2** Encourage a diversity of building types, ownership, prices, designs, and site plans for residential areas throughout the city.
- L-1.3** Encourage a diversity of lot sizes in residential subdivisions.
- L-1.4** Conserve residential areas that are threatened by blighting influences.
- L-1.5** Protect existing neighborhoods from incompatible developments.
- L-1.7** Encourage the location of multi-family developments on sites with good access to transportation, shopping, and services
- L-1.6** Continue to pursue quality single-family and higher density residential development.
- L-1.8.** Create livable and identifiable residential neighborhoods.

**Goal Area- Land Use ( L-2): Economic & Business Development**

Increased Employment Opportunities for the Citizens of Waterford  
A Diverse and Balanced Waterford Economy  
Preservation/Enhancement of the city's Economic Base  
High Quality Industrial Areas  
Ready Access to Commercial Services Throughout the city  
A Revitalized Downtown Area

**Policies**

- L-2.1** Encourage development of appropriate commercial and industrial uses throughout the city.
- L-2.2** Locate new or expanded industrial/business parks in appropriate areas.
- L-2.3.** Promote the retention and expansion of existing industrial and commercial businesses.
- L-2.4** Provide a range of services adjacent to and within industrial/business park areas to reduce auto trips.
- L-2.5** Maintain attractive industrial/business park areas.
- L-2.6** Provide neighborhood commercial centers in proportion to residential development in the city.
- L-2.7** Locate and design new commercial development to provide good access from adjacent neighborhoods and reduce congestion on major streets.
- L-2.8** Encourage a mixture of uses and activities that will maintain the vitality of the downtown area.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that is consistent with land uses proposed in the general plan Land Use Chapter. The rezoning of these properties will not have an immediate impact on existing uses and activities due to the fact that non-conforming uses and activities would be allowed to continue in a manner consistent with the city's zoning regulations. The changes in zoning will, however, have an immediate impact on the types of new uses and development that can be proposed in a land use category.

***E. Long-Term Impacts:***

Adoption of the Waterford General Plan will provide for the long-term growth needs of the city and facilitate that growth by establishing policies and standards that will guide future development and the public decision making process regarding growth and development.

***F. Cumulative Impacts:***

The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term urban pattern for this northwestern portion of the county. The urban pattern established with these two planning documents will impact agricultural productivity for the region, regional circulation and transportation needs for the future, and the overall economic health of the area. Proper planning and sound public policy, such as reflected in the general plan process mandated by state law, will assure that all physical adverse environmental impacts to land use are considered in the final decision making process.

***G. Secondary Impacts:***

With the implementation of the Land Use policies and standards of the general plan, there will be a differential in land value that will reflect market functions of supply and demand. Early demand for more “residential” land will reduce the value of lands not designated as residential.

***3.10.3 Mitigation Measures***

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There are no mitigation measures needed to address potential adverse impacts on land use that can reasonably be expected to result from the adoption and implementation of the Waterford General Plan, its policies, standards and goals.

***3.10.4 Level of Significance After Mitigation***

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There are no potential adverse physical impacts on land use that can reasonably be expected to result from the adoption and implementation of the Waterford General Plan beyond those discussed in other sections of this Program EIR.

## ***Section 3.11***

### ***Mineral Resources***

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This environmental issue focuses on the impacts of a project on known mineral resources of commercial or otherwise documented economic value.

#### ***3.11.1 Environmental Setting***

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The Tuolumne River channel, as it passes through the city of Waterford, contains mineral resources that require managed production, according to the State Mining and Geology Board. The state legislature adopted the Surface Mining and Reclamation Act (SMARA) in 1975, which designated Mineral Resource Zones (MRZ) for areas possessing minerals which are of state-wide or regional significance.

MRZs are identified in the *Mineral Land Classification of Stanislaus County, California* (1993) Report (Special Report 173). The report designated the “Waterford” area of the Tuolumne River corridor as MRZ 2b<sup>sg(C6)</sup> which translates into “Mineral Resource Zone” in the “sg” (class-aggregate-sand and gravel) in the “use class” (C) for concrete. The “6” is a site identification number.

Areas to the east and west of the city, Site 12 (Hickman Pit) and 13 (Waterford Site) are presently active sand and gravel mining operations. Sand and Gravel mining in the river corridor, as it passes through Waterford, is limited due to the narrow river channel in this area. It is unlikely that any commercial mining operation could be established in the area of the river due to the environmental impacts on the river and the narrow channel resource base.

#### ***3.11.2 Environmental Impacts***

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To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in development activity could result in activities or uses that would preclude the opportunity to extract and process valuable mineral resources.

##### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Mineral Resources as follows:

##### ***Will the project:***

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

##### **DEFINITION OF ISSUE**

This issue involves hampering or precluding the extraction, processing, or access to, aggregate or mineral resources that would result in the loss of the availability of know

mineral or aggregate resources or the loss of a locally important mineral resource recover site.

#### **DEFINITION OF TERMS**

*Aggregate* means construction grade sand and gravel.

*Mineral* means a mineral resource found in the earth in quantities that would permit the economic recovery and refining of the resource.

*The Surface Mining and Reclamation Act (SMARA)* as set forth in Public Resources Code Section 2710 et seq., requires all mining operator to have a city or county approved reclamation plan for any mine operated after January 1, 1976. The purpose of the act was to establish a process and standard for the reclamation of “mined” land in the state of California and to minimize environmental problems resulting from mining.

*Reclamation Plan* SMARA requires approval of reclamation plans and permits for all new and re-activated mining operations that must be approved by the local city or county government. Reclamation plans specifically provide for control of erosion and flooding, waste disposal and protection of water quality.

*Mineral Land Classification Survey* SMARA, established in 1975, requires the California Department of Conservation-Division of Mines and Geology to conduct Mineral Land Classification Surveys. The law requires the state geologist to classify land, according to the presence, absence, or likely occurrence of significant mineral deposits in certain areas of the State subject to urban expansion or other irreversible land uses incompatible with mining. The objective of the survey is to ensure that the mineral potential of land is recognized and considered prior to making land use decisions that would preclude mining.

*Mineral Resource Zones (MRZs)* are categories set forth in the guidelines established by the State Mining and Geology Board that have been adapted to the California Mineral Land Classification Diagram. These adaptations are presented below:

**MRZ-1:** Areas where available geologic information indicates there is little likelihood for the presence of mineral resources.

**MRZ-2a:** Areas that contain significant measure of indicated reserves.

**MRZ-2b:** Areas where geologic information indicates that significant inferred resources or demonstrated sub-economic resources are present.

**MRZ-3a:** Areas likely to contain undiscovered mineral deposits similar to known deposits in the same producing district or region (hypothetical resources).

**MRZ-3b:** Areas judged to have a favorable geologic environment for mineral resource occurrence, but where mineral discoveries have not been made in the region (speculative resources).

**MRZ-4:** Areas where geologic information does not rule out either the presence or absence of mineral resources.



### California Mineral Land Classification Diagram

	Identified Resources		Undiscovered Resources Probability Range	
	Demonstrated Measured/Indicated	Inferred	Hypothetical	Speculative
Economic	<b>MRZ-2a</b> Reserves	<b>MAZ-2b</b> Inferred Resources	<b>MRZ-3a</b>	<b>MRZ-3b</b>
Marginally Economic	Marginal Reserves	Inferred Marginal Resources		
Subeconomic	<b>MRZ-2b</b> Demonstrated Subeconomic Resources	Inferred Subeconomic Resources		
	<b>No Resources MRZ-1</b>	Unknown <b>MRZ-4</b>		

*Hampering/Precluding Extraction, Processing or Access* Any other type of land use which is proposed to be located in, or immediately adjacent to, any known aggregate or mineral resource area or adjacent to a principal access road to an existing aggregate extraction or processing permit.

*Mineral Resource Recovery Zone (MRRZ)* An area designated by the Solid Waste Management Board or by means of local ordinance as appropriate for resource recovery and recycling such as a recycling center at a solid waste disposal site.

#### THRESHOLD CRITERIA

A project will have a significant impact on mineral resources if it would result in any of the following:

- Hampering/precluding the extraction, processing or access of any known “economic” or “marginally economic” mineral resource classified as MRA2a or MRA2b on a Mineral Land Classification Survey.
- Hampering/precluding the extraction, processing or access to locally-important mineral resource recover site located within a Mineral Resource Recovery Zone delineated on a local general plan, specific plan or other adopted public plan.

#### ***B. Potential Significant Impacts:***

The city’s planning area does not contain any mining operations and is not known to contain economic deposits of any important mineral resources. Due to the fact that mineral resources are not known to exist within the city’s planning area, and are not likely to exist due to the geologic structure of the region. The area has not been mapped by the state geologist in accordance with the State Mineral Land Classification system.

*Mineral Resources Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential mineral resource impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*  
There are no mineral resources within the project area that have any commercial value.
- *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*  
Due to the fact that there are no mineral resources in the region of commercial value, there are no lands designated on the City of Waterford General Plan Land Use Map for mineral resource recovery.

*Mineral Resources Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, potential mineral resource impacts are not likely result in a significant adverse environmental impact from plan adoption and/or implementation.

***C. Proposed General Plan Goals & Policies:***

The goals and policies contained in the proposed general plan reflect the city's desire for a balanced community that is economically viable, provides for a variety of economic needs, and retains both its agricultural and small town character. Given the limited amount of mining and mineral resources within the community planning area, there are no goals or policies that directly relate to Mineral Resources.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that will most likely not be compatible with aggregate mining in the Tuolumne River corridor. This impact is of little consequence, however, due to the fact that there are no mineral resources in concentrations to be of any significant economic value.

***E. Long-Term Impacts:***

Adoption of the Waterford General Plan will lead to growth and development patterns that will be incompatible with exploitation of the sand and gravel resources in the Tuolumne River channel as it passes through the urbanized area of Waterford. This impact is of little consequence, however, due to the fact that there are no mineral resources in concentrations to be of any significant economic value.

***F. Cumulative Impacts:***

While the sand and gravel resources within the Waterford urban area are limited, the removal of this limited resource will add to the future scarcity of sand and gravel for the construction industry or result in increased cost of these resources because of higher transportation costs.

***G. Secondary Impacts:***

As a result of land use incompatibilities, restrictions will be placed on aggregate mining in the Waterford area. This could result in an increase in future production costs of building materials. Increased costs of building materials will result in an increase cost of new development in the future.

***3.11.3 Mitigation Measures***

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None proposed.

***3.11.4 Level of Significance After Mitigation***

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No impact on mineral resources.

## ***Section 3.12***

### ***Noise***

This environmental issue addresses the impacts of the general plan with respect to noise or ground-borne vibration. The creation of new noise or ground-borne vibration conditions or activities that will result in people or property being exposed to existing noise or vibrations is the primary area of focus under this environmental issue.

#### ***3.12.1 Environmental Setting***

***Basic Characteristics of Noise*** Noise is sound that the individual considers unwanted, uncomfortable, or aesthetically displeasing. Because noise is a subjective determination, it is possible for one person to consider a sound to be noise and another person to consider the same sound pleasing. Figure 3.12.1 illustrates the sound levels of various noise sources.

**Figure 3.12.1**  
***Common Indoor and Outdoor Sound Levels***

Common Outdoor Noise Sources	Sound Level (dBA)	Common Indoor Noise Sources
	110----	Rock Band
Jet Flyover at 1000 ft	100----	Inside Subway Train (New York)
Gas Lawn Mower at 3 ft	90----	
Diesel Truck at 50 ft	80----	Food Blender at 3 ft
Noisy Urban Daytime	70----	Garbage Disposal at 3 ft
Gas Lawn Mower at 100 ft	60----	Shouting at 3 ft
Commercial Area	50----	Vacuum Cleaner at 10 ft
Heavy Traffic at 300 ft	40----	Normal Speech at 3 ft
Quiet Urban Daytime	30----	Large Business Office
Quiet Urban Nighttime	20----	Dishwasher in Next Room
Quiet Suburban Nighttime	10----	Small Theatre, Large Conference Room (Background)
Quiet Rural Nighttime	0----	Library
		Bedroom at Night
		Concert Hall (Background)
		Broadcast and Recording Studio
		Threshold of Hearing

The degree of disturbance from noise depends upon three factors: (1) the amount (amplitude) and nature (frequency) of the intruding noise; (2) the amount of background noise present before the intruding noise; and (3) the nature of the working or living activity of the people occupying the area where the noise is heard. A smooth, continuous flow of noise is more comfortable or acceptable than impulsive or intermittent noise,

even though all of these noises might be judged as unwanted. Noises that are more identifiable tend to be more annoying. Other terms defined below are additional characteristics of sound that help determine whether the sound will be considered pleasing or displeasing.

#### **DEFINITION OF TERMS**

*Noise* is defined as any unwanted sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Because the effects of noise accumulate over time, it is necessary to deal not only with the intensity of sound but also the duration of human exposure to the sound.

*Ambient Noise Level:* The *Community Noise Equivalent Level (CNEL)* for the project site and an area within 200 feet of the boundaries of the project site.

*Amplitude:* Decibels, the unit of measurement for amplitude, are based upon a logarithmic scale. Instead of increasing arithmetically, as in cycles per second, decibels increase exponentially as is characteristic with the Richter Scale used in measuring the force of an earthquake. There are several adaptations of the decibel unit of measurement that take into account the way humans react to sound. These adaptations are listed below.

*A-Weighted Sound Level (dBA):* Except as specified, all sound levels referred to in this policy document are in *A-weighted* decibels. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

*Community Noise Equivalent Level (CNEL):* The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

*Day-Night Average Sound Levels (LdN):* This method of measuring sound levels incorporates the noise from a series of individual events and weights them according to time of day of the event. The 24-hour day is divided into two time periods: (1) Day, 7:00 a.m. to 10:00 p.m.; and, (2) Night, 10:00 p.m. to 7:00 a.m. In order to more accurately reflect the annoyance level of day and night-time events, they are weighted by a multiplier of one (1) for day and ten (10) for night. Unlike the L10 method, LdN does not measure the actual noise of, for example, passing trucks, but rather the average noise over a period of 24 hours. LdN or CNEL are the two descriptors to be used in Noise Elements for local compliance with the state noise insulation standards.

*Decibel (A Scale)-dB(A):* The decibel is the unit used for describing the amplitude of sound. The decibel scale is relative to the human ear, with 0 decibels being the threshold of hearing. Because the human ear's perception of sound varies with the frequency, a modified decibel scale (A Scale) has been developed which incorporates the human ear's greater sensitivity to high frequency sound and lower sensitivity to low frequency sound.

Equivalent Sound Level ( $L_{eq}$ ): The sound level containing the same total energy as a time varying signal over a given sample period.  $L_{eq}$  is typically computed over 1, 8 and 24-hour sample periods.

Frequency (Cycles per Second): Frequency or pitch is influential in determining the pleasantness of a sound. The human ear can perceive frequencies as low as 15 cycles per second (or Hertz, abbreviated Hz) which would be a very low rumble, and as high as 20,000 cycles per second, a very high screech. The piano ranges from a low of 28 Hz to a high of 4,186 Hz. High frequencies are more irritating to the human ear and can make a low volume noise seem noisier.

$L_{10}$ : In measuring a sound that is recurring but not maintaining a constant level, it is necessary to get a sound reading that takes into account the inconsistency of sound.  $L_{10}$  measurements indicate a sound level that is being exceeded 10 percent of the time.

Maximum Sound Level ( $L_{max}$ ): The maximum sound level recorded during a noise event.

New Development: Projects requiring land use approval or building permits, but excluding remodeling or additions to existing structures.

Noise-Sensitive Land Use: Residential land uses, transient lodging, schools, libraries, churches, hospitals and nursing homes.

Outdoor Activity Areas: Patios, decks, balconies, outdoor eating areas, swimming pool areas, yards of dwellings and other areas which have been designated for outdoor activities and recreation.

Sound: Sound is a mechanical form of radiant energy which is transmitted in waves through the air (or other medium) and received as vibrations on the ear drum. Sound waves are measured in terms of frequency or number of cycles per second, and in terms of amplitude or decibels.

Stationary Noise Source: Any fixed or mobile source not preempted from local control by existing federal or state regulations. Examples of such sources include industrial and commercial facilities, and vehicle movements on private property.

Transportation Noise Source: Traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by existing federal or state regulations. However, the effects of noise from transportation sources may be controlled by regulating the location and design of adjacent land uses.

***Decibel Addition:*** Decibels progress at a logarithmic rate. As a result, when two sounds of 90 dB(A) are produced together, the combined dB(A) reading will be 93 dB(A) and not 180 dB(A). The following chart can be used to determine the sound level of the combined sounds:

<i>When two decibel values differ by:</i>	<i>Add the following amount to the higher figure:</i>
0 - 1 dB	3 dB
2 - 3 dB	2 dB
4 - 9 dB	1 dB
10 or more dB	0 dB

The human ear, however, perceives a doubling (or halving) of loudness for every change of 10 dB(A).

### ***Attenuation***

Sound from a localized source spreads out uniformly and the rate of attenuation (sound reduction) is about 6 dB for every doubling of distance, varying somewhat according to humidity, temperature, and other climatic conditions. Therefore, if a sound is 60 dB at 50 feet, it will read 54 dB at 100 feet. At very long distances (greater than a few hundred feet), and especially in a hot, dry climate, the air absorbs a certain amount of high frequency energy and the sound level drops off at a slightly higher rate. For a line source like nonstop automobile traffic, the rate of sound attenuation is 3 dB for each doubling of distance. Because traffic is seldom sufficiently constant to use the line source rate of attenuation, the National Cooperative Highway Research Program has adopted a 4.5 drop-off rate for highway traffic.

### ***Barrier/Noise Reduction Concepts for Noise Attenuation***

In general, three basic techniques provide noise attenuation: (1) the use of barriers or berms; (2) site design; and, (3) acoustical construction. Acoustical construction is recommended when barriers or site design cannot provide all the attenuation necessary. Basically, acoustical construction reduces the interior noise level of a building, but would not reduce exterior noise levels. In some cases, a quiet exterior environment is as important as the interior environment; therefore, special attention should be given to the type of project that is being reviewed to determine the type(s) of attenuation needed.

*Diffracted path, transmitted path, and reflected path* are the redistribution of the sound energy when a barrier is introduced between the source of the noise and the receiver. If no barrier exists between the noise source and adjoining areas, the sound will travel in a direct path from the source, diminishing only with distance. But, if a barrier is introduced, some attenuation is possible at shorter distances.

The amount of sound that “passes through” a barrier (barrier transmission) depends upon the barrier material weight and stiffness, and the holes or openings in the barrier. In the case of the latter ones, any openings or holes may seriously degrade the noise reduction since the sound pressure increases upon striking the barrier wall, and this results in an

amplification of the transmitted sound. Materials that provide a good sound absorption are concrete, masonry, brick, and granite, among others.

Sound energy is also reflected by a barrier wall. When there is only one wall used as a sound barrier for a specific receiver, the reflected energy would not affect the receiver and the purpose of attenuating noise is accomplished, even though some noise will be defracted or transmitted and might reach the receiver. But, when a double noise barrier is involved, additional sound energy can reach the receiver by a reflection from the opposite wall. If the walls are made of materials which have a good sound absorption rate, the contribution of each reflection will be decreased by the amount that depends upon the absorptive characteristics of the barrier. So this, in turn, will usually recover all of the lost noise reduction.

Barrier defraction (and attenuation) is the amount of sound waves that can reach a receiver by bending over the top of the barrier. Once the sound is diffracted behind a barrier, it creates a “shadow zone.” Any receiver located in this area or zone will experience some sound attenuation; the amount of attenuation will depend on the magnitude of the diffraction angle. As the angle increases, the barrier attenuation also increases. The diffraction angle will increase if the barrier height increases, or if the source or the receiver is placed closer to the barrier.

#### Noise Levels Combination

With a typical sound barrier, the noise levels are reduced by the sound waves being diffracted over the barrier and by the sound waves passing through the barrier. The noise level at the receiver will be the combination of the attenuated levels resulting from each attenuation step.

For example, if the starting noise level is 70 dB and the noise level is reduced 10 dB when the sound passes through the wall, then the attenuated level reaching the receiver is 60 dB. On the other hand, if the attenuation provided by the sound waves being diffracted over the barrier is also 10 dB, the attenuated noise reaching the receiver will be 60 dB as well.

However, as explained previously, when the two attenuated levels are combined, the final level becomes 63 dB and not 60 dB. Thus, even though the attenuation value of each step was 10 dB, the combined reduction is only 7 dB. Noise levels combine in such a way that only when the difference between levels is greater than 10 dB does it affect the combined noise level.

Site planning can also be used as a tool for noise reduction. Many site planning techniques can be employed to protect sensitive uses from excessive noise.

These are among others:

- (1) increasing the distance between the noise source and the receiver;
- (2) placing noise compatible land uses (parking, utility rooms, maintenance buildings, etc.) between the source and the receiver;



- (3) locating the barrier-type facility or building parallel to the noise source; and,
- (4) orienting the noise-sensitive use away from the source of noise.

All these techniques can be used to attenuate the actual noise reaching a noise-sensitive land use, without adding an excessive burden or cost to a specific proposal.

### ***Psychological and Physiological Effects of Noise***

The psychological and physiological effects of noise have been studied, but not to such an extent that conclusions can be drawn with any degree of finality. Further research may determine that existing noise levels are, and have been, creating severe impacts on health, or it may find that human beings can tolerate much higher everyday noise levels without ill effects.

The following discussion describes three areas where concern has encouraged research. While the results of this research are not conclusive, the potential damage should be sufficient to warrant concern. "There is no definitive evidence that noise can induce either neurotic or psychotic illness. There is evidence that the rate of admissions to mental hospitals is higher from areas experiencing high levels of noise from aircraft operations than in similar areas with lower levels of noise."

### **Hearing Ability**

Clear evidence is available that noise with A-weighted sound levels above 80 decibels can contribute to inner ear damage and eventual hearing handicap if such noises are frequently and regularly encountered. A slight hearing loss at an early age may be considered insignificant. However, when combined with the natural decrease in hearing ability due to old age, the total hearing loss may become significant. The exposure to a combination of noise sources may be damaging even though exposure to the same sources individually is not. For this reason, any significant noise sources should be included in the study of the overall community noise exposure level.

### **Sleep**

Men and women vary in sensitivity to noise during sleep. Research points out that sleep disturbance from subsonic-aircraft noise or sonic booms is greater for middle-aged women than for middle-aged men. Thus, it appears that women's sleep is more easily disturbed by noise than is men's, even when other variables such as motivation and stage of sleep are equated. In other research, it was found that people over 60 years of age are more sensitive to noise while sleeping and, if awakened, find it more difficult to fall back to sleep compared to people in other age groups.

The highest degree of adaptation to noise will probably be apparent in not awakening or awakening for shorter periods. It will be less likely that the individual will adapt to an extent that upward shifts from deep to light sleep are experienced, and it is improbable that there will be complete adaptation as shown in responses to the electroencephalogram (EKG-method of measuring heart rhythms) and in changes in heart rate and blood flow. In other words, while the individual may think he is completely adapting to the high noise level, he is probably only adapting partially; instead of awakening, he is moving into a

lighter stage of sleep, or instead of moving into a lighter stage of sleep, he is registering changes in blood flow and heart rate and rhythm.

***Social and Economic Effects of Noise***

***Social Effects*** High noise levels can disrupt normal communications and cause people to change their behavior so that the noise is lessened or avoided. To some people, these changes merely indicate an adaptation to the stimulus and are unlikely to do any great harm; others find the disruption and adaptation behavior to be equally damaging in that they both discourage spontaneity. The following comments review the types of effects noise can have on communication and behavior patterns of people.

***Communication*** Distances between people while talking varies with the situation. In one-to-one personal conversations, the distance is usually around five feet with noise level as high as 66 dB(A). In group situations, the distance maintained is somewhere between five and twelve feet with background noise levels of no more than 50 to 60 dB(A). For outdoor gatherings where distances range from 12 to 30 feet, any noise level higher than 45 to 55 dB(A) will hinder communications.

***Behavior Patterns*** Not being able to communicate spontaneously or without difficulty will affect the behavior patterns of people. In one area that was subjected to high noise levels from aircraft, the impact on the community was evident in the schools. At the higher noise levels teaching was interrupted and a “jet pause” teaching style had to be adopted to accommodate the noise. The noise interference goes beyond the periods of enforced non-communication, for it destroys the spontaneity of the educational process and subjects it to the rhythm of the aeronautical control system.

Even when people claim they are “used to” the high noise levels, there is evidence that they have changed their behavior to suit the interference; that is, they adopt a “non-communicating lifestyle” using less verbal communication and more non-verbal techniques: gestures, posture, and facial expressions. Among adults, free and easy speech communication is probably essential for full development of social relations and self.

***Economic Effects*** The economic effects of noise range from the involuntary costs associated with lowered property values and decreased worker output, to the voluntary costs of mitigating the noise problem. In many cases, the economic benefits of a project are used as the sole determinants and little attention is given to the effects on the individual’s psychological, physiological, social, and economic well-being.

***Property Values*** Property values can be negatively affected by noise. In San Francisco it was found that the noise variable was a statistically significant determinant of property values in a majority of cases cited. In other studies, the relationship between noise and property values was confused by the rapid turnover (and, therefore, more frequent tax assessments) of housing in high noise areas. The property values in high noise areas appeared not to have been affected by the noise since the higher number of reassessments had brought the value of the house up at a more rapid rate.

***Job Production*** High noise levels may affect worker output and worker safety. A tired and nervous person is obviously not as attentive or able to concentrate on the tasks that he is performing as a rested and relaxed person; i.e., noise can contribute to making a person more prone to accidents in both the home and the work environment.

***Noise Pollution Standards***

As noise levels have risen, federal, state, and local governments have become more concerned and more willing to consider methods for reducing exposure to noise. These methods include setting limits on the noise levels that can be produced by a piece of equipment and limiting the noise that can be experienced by a particular land use.

***Related Federal Standards*** The U. S. Department of Housing and Urban Development sets criteria and standards for noise acceptability for its housing programs. These programs set 65 dB(A) outdoor noise level as the limit for site acceptability without any required dB reduction. HUD's noise policy (54 CFR 51 B) clearly requires that noise attenuation measures be provided when proposed projects are to be located in high-noise areas. A goal of 45 dB(A) maximum is set forth for interior noise level, and the attenuation requirements are geared towards achieving that goal.

***Related State Regulations*** California Administrative Code, Title 21, Subchapter 6, establishes noise criteria for civilian airports in California, whereas the 65 dB(A) CNEL contour is established as the boundary for requiring residential development to provide adequate mitigation. Measures for mitigation are specified to attain land use compatibility with respect to aircraft/airport noise.

Title 24 of the California Administrative Code regulates interior noise levels within multiple-occupied dwellings affected by noise from traffic, aircraft operations, railroads, and industrial facilities. The California Vehicle Code sets noise emission standards for new vehicles, including autos, trucks, motorcycles, and off-road vehicles. Section 216 of the Streets and Highways Code regulates traffic noise as received at schools near freeways. CEQA includes noise as one of the factors in determining environmental impacts.

***The City of Waterford***

The City of Waterford Municipal Code (WMC) section which pertains to noise is 8.22 "Noise Control." The reference to noise problems is within the category of "any other condition or use of property" which is a public nuisance under law. Title 17 of the WMC also deals with noise as a result of the adoption of the Uniform Building Code. Indirectly, noise levels are being regulated by land use planning, as in the establishment of truck routes. When enforced, the regulations and standards contribute to a quieter environment. Chapter 11, the Noise Chapter of the Waterford Vision 2025 General Plan Update is intended to guide continued and expanding efforts to reduce noise and noise impacts in Waterford.

***Identified Major Noise Sources***

The principal noise source in the city of Waterford is traffic on State Highway 132 and the Oakdale/Waterford Highway (J9). Both highways constitute major arterial roadways within the city limits. As the highways pass through the city, local traffic is added to through traffic, so that the total traffic volumes increase. Therefore, noise levels along both highways are expected to be somewhat higher within existing city limits than they are near the outskirts of the updated general plan area.

As the city continues to grow in accordance with the general plan, traffic noise on these and additional roadways is expected to increase. Future sources of traffic noise within the planning area include Eucalyptus Avenue, El Pomar Avenue and Old Tim Bell Road, all arterial roadways, and a number of existing and planned collector roads. Some of the roadways segments considered under the general plan build-out conditions do not exist at this time. Most of these roadways are proposed to operate as connectors and arterials.

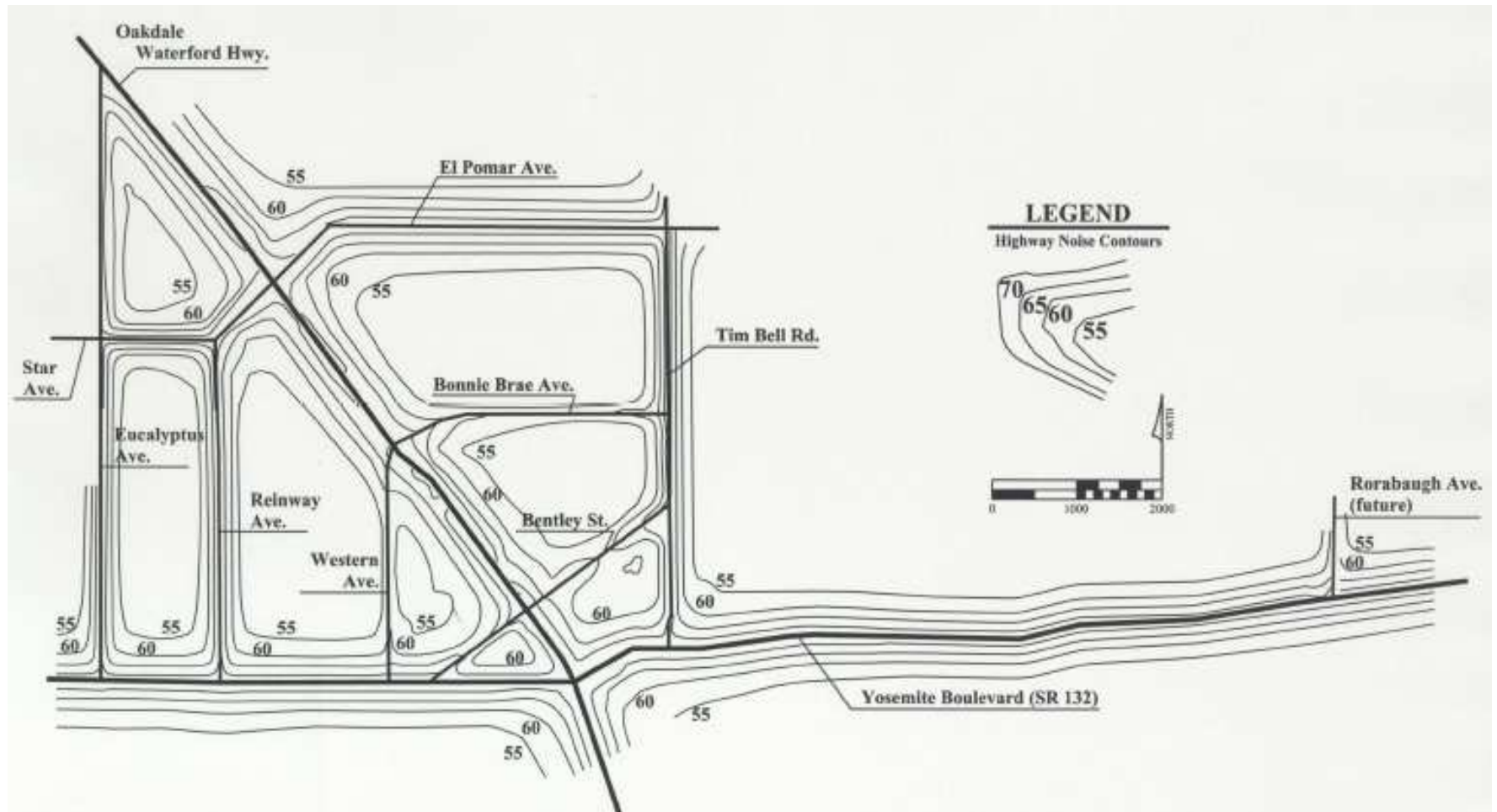
***Traffic Noise Sources Analysis***

Traffic noise exposure was calculated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM). The current version of the TNM is 2.5, updated in February 2004. The TNM is the analytical method currently favored by most state and local agencies, including Caltrans, for highway traffic noise prediction and traffic noise barrier design.

The TNM is based upon reference energy emission levels for automobiles, medium trucks, (2 axles) and heavy trucks (3 or more axles), buses and motorcycles with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the ground.

The FHWA Model was developed to predict hourly Leq values for free-flowing traffic conditions, and is generally considered to accurately calculate such values within  $\pm 1.5$  dB. The model is also capable of producing noise contour maps, the accuracy of which can be varied depending upon the type of analysis being conducted. Traffic noise contours are a planning tool that serves as an indicator of potentially noisy locations and do not require the accuracy needed for noise barrier design. The model can use directional average daily trips (ADT) information to produce a graphical interpretation of the noise contours directly on a user-defined coordinate system. In this mode, the model tends to overstate the noisiness because it averages the ADT over 24 hours, which results in more nighttime traffic to which noise penalties are attached.

**Exhibit 3.12.1  
Highway Noise Contours  
2025 Conditions**



To predict  $L_{dn}$  values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Exhibit 3.12.1 illustrates the 2025 traffic noise contours for the major arterial and collector streets in the city of Waterford. Traffic data used in the traffic noise exposure modeling process are presented in Table 5.3, page TC-7 of the Waterford Vision 2025 General Plan Update. The contours reflect the relative differences in traffic volumes along the major roads, but do not reflect the potential shielding effects of businesses that are located between residential areas and these roads. Residential units that are exposed to the roadway with no noise barriers would receive the traffic sounds without attenuation. Many newer developments constructed adjacent to the principal roadways have noise attenuation barriers.

Traffic noise levels that are in the range 60-65 dB(A)  $L_{dn}$  usually are considered to be fully compatible with noise sensitive uses, which include residences, schools, churches and hospitals. Levels between 65 and 75 dB  $L_{dn}$  are usually unacceptable, and it may not be feasible to reduce such levels to acceptable values.

### ***3.12.3 Environmental Impacts***

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As urbanization of the planning area increases, additional motor vehicle traffic on the local streets and highway network or industrial uses attracted through the development process can be expected to increase the overall ambient noise level. New construction of noise sensitive uses near historic sources of noise, such as streets and highways, will create new potential conflicts and incompatibilities with some types of land uses.

#### ***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts of noise as follows:

##### ***Would the project result in:***

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

#### **THRESHOLD CRITERIA**

A project will have a significant impact on noise if it would result in any of the following:

- New development of noise-sensitive land uses located in an area exposed to existing or projected future levels of noise from transportation noise sources which exceed 65 dB  $L_{dn}$  in outdoor activity areas or 45 dB  $L_{dn}$  in interior spaces.
- Noise created by new transportation noise sources, including roadway improvement projects, that cannot be mitigated so as not to exceed 65 dB  $L_{dn}$  within outdoor activity areas and 45 dB  $L_{dn}$  within interior spaces of existing noise-sensitive land uses.
- New development of noise-sensitive land uses located in an area where the noise level from existing stationary noise sources exceeds the noise level standards of the following Table 3.12.1.

<b>Table 3.12.2 MAXIMUM ALLOWABLE NOISE EXPOSURE-STATIONARY NOISE SOURCES<sup>1</sup></b>		
	<b>Daytime (7 a.m. to 10 p.m.)</b>	<b>Nighttime (10 p.m. to 7 a.m.)</b>
Hourly $L_{eq}$ , dB	55	50
Maximum level, dB	75	70
<sup>1</sup> As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.		

- Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase noise levels but cannot be mitigated so as not to exceed the noise level standards of Table 3.12.1 at noise-sensitive uses.
- A temporary noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase ambient noise levels by more than 40%.
- A permanent noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase ambient noise levels by more than 20%.
- Ground-borne vibration or ground-born noise created by new proposed stationary sources or existing stationary sources which undergo modifications that may increase noise or vibration levels at noise-sensitive uses.
- A noise-sensitive use proposed within the approach or landing zone of an airport.

***B. Potential Significant Impacts:***

*Noise Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential noise impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

The general plan contains standards that are based on the state noise guidelines and will be used as the standard for review of noise impacts of a development project and as a regulatory standard for existing noise sources.

- *Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?*

The general plan establishes the standards for evaluating ground-born vibrations and noise.

- *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

The general plan will accommodate growth within the urban area that will, in turn, result in a permanent increase in the ambient noise levels in some areas of the city that are now unimproved. The development review process for subdivisions and zoning entitlements will be utilized to moderate noise increases through the application of improvement conditions such as sound walls, buffers and other acceptable sound attenuation techniques. The increase will be within the limits established for the various uses permitted in these unimproved areas and therefore will be considered acceptable, and not substantial, within the context of an urban environment.

- *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Growth and development that is accommodated in the Waterford General Plan will result in construction activity and construction equipment being used on a temporary basis. The use of this equipment will result in short-term and temporary noise impacts. The development review process for subdivisions and zoning entitlements will be utilized to moderate construction noise impacts through the application of permit conditions such as limiting hours of operation and other acceptable noise limiting techniques. As a result of the application of these construction conditions on a permit, it is expected that short-term or temporary noise impacts on the ambient noise levels can be reduced to an acceptable level.



*Noise Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential noise impact are likely to result in a significant adverse environmental impact due to project implementation.

***C. Proposed General Plan Goals & Policies:***

The Noise Element of the Waterford General Plan contains the following goals and policies with respect to noise.

***Goal Area: Noise (N) A Quiet Environment***

**Noise (N) Sensitive Land Use Protected From Excessive Noise**

***Policies:***

**N-1.1** Reduce surface vehicle noise.

**N-1.2** Reduce equipment noise levels.

**N-1.3** Reduce noise levels at the receiver where noise reduction at the source is not possible.

**N-1.4** Coordinate planning efforts so that noise-sensitive land uses are not located near major noise sources.

**N-1.5** Mitigate all significant noise impacts as a condition of project approval for sensitive land uses.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on the noise environment other than to affirm existing policy regarding the regulation of noise sources within the city.

***E. Long-Term Impacts:***

Long term impacts of growth and development are expected to result in increased ambient noise levels within undeveloped areas of the city. Temporary noise will result from construction and development activities associated with growth and development in the city.

***F. Cumulative Impacts:***

Expansion of urban noise levels into areas presently used for agricultural purposes, combined with new light sources, increased traffic and the related population impacts of growth and development will change the character of the environment along the city's present urban fringe. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.

***G. Secondary Impacts:***

Noise thresholds that have been affirmed in the plan are presently in place and have been applied to new development and construction in the city for many years. The increased costs associated with these regulations are standard throughout the region and do not have any impact on the cost of doing business in the city of Waterford in relation to other communities of similar size and circumstances.

### ***3.12.3 Mitigation Measures***

As part of the city's development review program, individual development projects are typically required to prepare a noise study to evaluate the project's noise impact. Typically this impact is related to traffic volumes. Larger projects typically prepare a more extensive study that may evaluate regional traffic noise issues. As a result of these studies, specific project level mitigation measures may be required as part of the project's conditions of approval. The issue of noise impacts is addressed and mitigated, if necessary, during the review of specific development projects within the city. Therefore, no mitigation measures are proposed as part of this general plan as there are no specific significant adverse impacts expected to result from the adoption and implementation of the Waterford General Plan.

### ***3.12.4 Level of Significance After Mitigation***

No significant adverse physical impact on the noise environment is expected to result from the general plan's adoption and implementation.

## ***Section 3.13***

### ***Population and Housing***

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This environmental issue focuses on the impacts of a project on population and housing including population growth or displacement of human population and housing.

#### ***3.13.1 Environmental Setting***

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Growth in the central San Joaquin Valley is driven by several factors. Natural increase (births vs. death) and in-migration are the principal causes of human population growth in the Valley and Waterford. In-migration from the Bay Area and Silicon Valley has had a substantial impact on urban growth centers throughout the central valley. Demographic data shows continuing migration from high housing prices in the Bay Area and Silicon Valley to the historically more affordable housing in Stanislaus County. Other socio-economic growth factors include the changes occurring in the agricultural productivity of the region and the overall growth of the Valley's economy. Future growth in the region will be influenced by economic trends in the Bay Area and Silicon Valley and the new University of California campus near Merced to the south.

#### ***Historic Change***

Table 3.13.1 shows population changes since 1970 to the present. In 1990 Waterford's population was 4,771; in 2000 it was 6,924, an increase of 45%.

**Table 3.13.1**  
**Historic Growth Changes**  
**In the City of Waterford**

	<b>Population</b>	<b>% Change</b>
1970	2,120	-
1980	2,683	26.6%
1990	4,771	77.8%
2000	6,924	45.1%
2005	7,849	13.4%

Source: Stanislaus fair housing report.

#### ***Population Forecast***

The State of California Department of Finance has produced growth forecasts for the state and its 58 counties out to the year 2040. Using a technique known as "shift-share analysis" the Stanislaus County growth forecast determined that an approximate proportion of this 2040 population forecast is likely to reside in the city of Waterford. Table 3.13.2 below depicts the past and expected future population growth level for the city of Waterford.

Chapter 3.10 (Land Use) contains a detailed description of future population growth forecasts and describes the city's land use needs relative to that growth. This section contains a discussion regarding "low growth" and "high growth" estimates. As a result of

this analysis, the city of Waterford is expected to have a population of 10,393 people by the year 2010 and a population of nearly 19,000 by the year 2040 in the “Low Growth” scenario.

Figure 3.13.2 illustrates the possible “slow” growth scenario in Waterford to 2040. Data for this methodology came from the California Department of Finance.

**Table 3.13.2**  
**Waterford Projected Population Growth to 2040**

	<b>Population</b>	<b>% Change</b>
2010	10,393	-
2020	13,158	27%
2030	15,881	21%
2040	18,979	20%

Source: Waterford Planning Dept.

### ***Regional Overview***

Stanislaus County is a large, diverse, and rapidly developing jurisdiction. The county encompasses an area of approximately 1,500 square miles. Stanislaus County and the city of Waterford, both with a historical base in agriculture, are experiencing an economic and cultural transformation. This transformation is primarily attributed to the growth of commuters spilling over from the San Francisco Bay Area looking for less expensive housing and the growth of the Hispanic population, both from immigration and from high birth rates. Projections on the central valley census data indicate that Hispanics will be the majority population within the next generation.

### ***Housing***

Local governments are required to adopt and periodically update the housing element of their general plan as stated in California Government Code Section 65302(c). The guidelines and requirements for housing elements are outlined by the California Department of Housing and Community Development (HCD). The Housing Element of the Waterford General Plan is integrated with the general plan and recommends land use and development controls consistent with the Land Use and Circulation elements.

The Waterford Housing Element has considered the city's fiscal and environmental characteristics in determining the extent to which it is able to participate in the regional housing need. Given the financing available, price of land and cost of construction, this element endeavors to plan cooperatively with other local governments.

### ***Households***

According to the 2005 Stanislaus Fair Housing Report, there were 7,849 people living within the Waterford city limits. There were 2,329 households, comprised of 1,527 (65.6%) owner occupied units, 701 (30.2%) renter occupied units and a vacancy rate of 3.6 percent or 101 vacant units. The average household size was 3.52 people per residential unit.

The Housing Element contains policies that support the land use plan for the city and assures that as growth occurs in the city, the housing needs of existing populations are provided for and dislocation does not occur.

### ***Income and Employment***

The majority of jobs within Stanislaus County are located in the urbanized areas of Modesto, Ceres and Turlock. The median household income for Stanislaus County was \$43,340 in 2000. Waterford's median household income is one of the lowest in the county at \$39,286.

**Table 3.13.3  
Median Income, Projected Growth from 2000 – 2020**

	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Waterford	\$39,286	\$51,873	\$72,484	\$103,914	\$144,467
Oakdale	\$39,338	\$48,155	\$62,435	\$83,085	\$107,171
Modesto	\$40,394	\$43,128	\$48,849	\$56,828	\$69,012
Stanislaus County	\$43,340	\$48,408	\$57,328	\$69,534	\$85,471

Source: ADE, Inc. 2000 U.S. Census used as benchmark, rate of growth calculated from Woods & Poole, Inc data for Stanislaus County with an adjustment made for local performance.

**Table 3.13.4  
Per Capita Income, Projected Growth from 2000 – 2020**

	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Waterford	\$13,933	\$17,257	\$22,522	\$29,893	\$39,894
Oakdale	\$17,019	\$19,924	\$24,590	\$30,872	\$38,973
Modesto	\$17,797	\$20,043	\$23,808	\$28,770	\$34,961
Stanislaus County	\$16,913	\$19,170	\$22,914	\$27,866	\$34,076

Source: ADE, Inc. 2000 U.S. Census used as benchmark, rate of growth calculated from Woods & Poole, Inc data for Stanislaus County with an adjustment made for local performance.

In 2004 the City of Waterford contracted with ADE Inc. to conduct an economic study of the city. As a result of research conducted by ADE Inc., it was found that growth in household and per capita income levels had occurred in Waterford at a faster pace than other areas of the county. Assuming these trends continue into the future, the city of Waterford should exhibit the same type of economic profile as similar cities on the east side of Stanislaus County. As shown in Tables 3.13.3 and 3.13.4, with new growth and development in Waterford, the city is expected to have one of the highest household and per capital income levels in Stanislaus County by the year 2020.

### ***3.13.2 Environmental Impacts***

Adoption and implementation of a general plan does not directly induce growth but it does remove a major barrier to growth and development in a community by providing a long-term growth plan. Therefore, the general plan provides an indirect inducement to

growth and development. As a result of adopting and implementing the City of Waterford General Plan Update, it can be expected that growth and development will be facilitated and investment in the community will be encouraged. As a result of plan implementation, it can be expected that some existing uses, including housing, will be changed to new uses which will result in some displacement of housing and business in the city of Waterford urban area.

***A. Thresholds of Significance***

Appendix “G” of the CEQA Guidelines addresses potential impacts on Population and Housing as follows:

***Would the project:***

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

***ASSESSMENT OF GROWTH INDUCEMENT***

**DEFINITION OF ISSUE:**

Growth inducement is defined as any action that would eliminate or remove an impediment to growth in an area. This includes both physical impediments (lack of sewers, water, etc.) and policy impediments (Guidelines for Orderly Development, General Plan Policies, etc.).

**THRESHOLD CRITERIA:**

The CEQA Guidelines state that a project may have a significant impact if it would induce substantial growth.

Whether the growth inducing impacts of a project are significant should be decided on a case-by-case basis and depends on:

- a) how much added growth would be accommodated by removing the impediment and setting a precedent for similar actions in the future,
- b) whether that growth is consistent with the planned land use of an area, and
- c) the physical impacts of said growth (secondary impacts).

Generally speaking, growth and development anticipated and accommodated within an adopted general plan, specific plan or other land use planning document will be considered to create a less than significant impact.

***ASSESSMENT OF HOUSING DISPLACEMENT IMPACTS***

**DEFINITION OF ISSUE:**

This issue addresses the impacts of development on the existing housing supply. Of specific concern is the impact of new development on low and moderate income housing.

Loss of low and moderate income housing opportunities, through the process of displacement, can create economic dislocation in a community and create losses in affordable housing opportunities that may result in a violation of the community's adopted general plan housing element.

**THRESHOLD CRITERIA:**

If the project would result in the loss or displacement of five or more dwellings which are currently, or were recently, rented at or below a moderate income monthly rental rate, the impact is considered significant.

***ASSESSMENT OF POPULATION DISPLACEMENT IMPACTS***

**DEFINITION OF ISSUE:**

This issue addresses the impacts of development on the existing population. Of specific concern is the impact of new development on low and moderate income individuals, the elderly or populations with special needs.

**THRESHOLD CRITERIA:**

If the project would result in the loss or displacement of fifty or more people who are considered a special need population by definition of low-moderate income status, age, race or other similar type of special need criterion established by local policy or state law, the impact is considered significant.

***B. Potential Significant Impacts:***

***Population and Housing Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential population and housing impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Substantial growth is likely to result from the implementation of the Waterford General Plan. The plan provides sufficient land for normal expansion of the city's population. Given the varied housing opportunities that exist throughout the region, and the comparability of housing opportunities in Waterford to other areas, it seems probable that the city will grow at its projected rate of growth.

- *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

Some residential units will become uneconomic to maintain in areas designated for commercial or industrial development. These residential units will be abandoned for residential use, relocated or demolished depending on the circumstances of the property and the residential unit. This change can be expected to occur over a long

period of time and will be driven by the economic demand for commercial and industrial properties in the community. It is not likely that the process will involve the need for construction of replacement housing as the marketplace is expected to accommodate new housing opportunities in sufficient quantities that new residential units would be available.

- *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

Over the course of general plan implementation, it is expected that population residing in residential units located in land designated or classified for industrial or commercial uses will be displaced. This displacement, however, will occur over a period of many years and most like as a result of individual relocation decisions by the individual residents. People will relocate to residential areas, from non-residential areas, because of a more compatible residential environment and the desire to avoid the noise, traffic and other activities that are not compatible with residential uses. As part of the normal growth of the area, new residential opportunities can be expected to be created that would accommodate the dislocated population.

*Population and Housing Impacts Found to be Potentially Significant:*

Implementation of the general plan will result in an increase of dwelling units and population within Waterford. New residents will relocate to Waterford as a result of the construction of new residential units. The availability of new employment opportunities resulting from the development of currently agricultural-use lands to residential and commercial uses will draw additional residents to the city and surrounding areas. The actual rate of development that may occur pursuant to the general plan depends on a number of factors including financial and real estate market conditions. The estimated population of the project area

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, there are no potential population and housing impacts that are expected to result in a significant adverse environmental impact due to project implementation.

***C. Proposed General Plan Goals & Policies:***

The Waterford General Plan has several goals and policies regarding urban growth and housing. The following goals and policies address directly the issues of population growth and the preservation of the community's housing stock.

***Goal Area- Land Use***

Land Use (LU) Housing Opportunities in Balance with Jobs Created in the Land Waterford Urban Area

Land Use (LU) A Wide Range of Residential Densities and Housing Types in the city

Land Use (LU) Preservation and Enhancement of Existing Neighborhoods

Land Use (LU) Quality Residential Environments



Land Use (LU) Pedestrian-Friendly Residential Environments  
Land Use (LU) A Sense of Community

**Policies**

- L-1.1** Promote balanced development which provides jobs, services and housing.
- L-1.2** Encourage a diversity of building types, ownership, prices, designs, and site plans for residential areas throughout the city.
- L-1.3** Encourage a diversity of lot sizes in residential subdivisions.
- L-1.4** Conserve residential areas that are threatened by blighting influences.
- L-1.5** Protect existing neighborhoods from incompatible developments.
- L-1.6** Continue to pursue quality single-family and higher density residential development.
- L-1.7** Encourage the location of multi-family developments on sites with good access to transportation, shopping, and services.
- L-1.8** Create livable and identifiable residential neighborhoods.

**Goal Area- Housing**

- H-1** To develop through public and private channels, sufficient new housing to ensure the availability of affordable housing for all households in Waterford.
- H-2.** To manage housing and community development in a manner which will promote the long-term integrity and value of each new housing unit and the environment in which it is located.
- H-3.** To provide for a choice of housing locations for all residents.
- H-4.** To maintain and improve the quality of the existing housing stock and the neighborhoods in which it is located.
- H-5.** To promote equal access to safe and decent housing for all economic groups.
- H-6.** To promote energy conservation activities in all residential neighborhoods.

**Policies**

- H-1.a** Advocate and support proposed federal and state actions which will create a positive, stable climate for housing production.
- H-1.b** Wherever appropriate, facilitate the use of federal or state programs which can assist in development of new housing consistent with identified city-wide housing needs and adopted local plans and programs.
- H-1.c** Support efforts which serve to coordinate and improve the ability of the housing delivery system to effectively respond to local housing needs.
- H-1.d** Accommodate and encourage development of a full range of housing types within the city.
- H-1.e** Maintain a sufficient inventory of developable land to accommodate timely development of needed new housing supplies.
- H-1.f** Encourage and participate in efforts designed to achieve economies and efficiencies which will facilitate the production of quality, affordable housing.

- H-1.g** Promote balanced, orderly growth to minimize unnecessary developmental costs adding to the cost of housing.
- H-2.a** Provide that new housing be constructed in accordance with design standards that will ensure the safety and integrity of each housing unit.
- H-2.b** Encourage application of community design standards which will provide for the development of safe, attractive and functional housing developments.
- H-2.c** Manage new residential development within the context of a planning framework designed to minimize adverse impacts on the area's natural resource base and overall living environment.
- H-3.a** Review and update Waterford's General Plan on an annual basis to ensure that growth trends are accommodated.
- H-3.b** Encourage the development of various types of housing opportunities in all residential areas.
- H-3.c** Establish density bonus procedures that encourage the provision of affordable housing.
- H-4.a** Monitor the quality of the housing stock to maintain a current inventory of all substandard housing units.
- H-4.b** Provide for the removal of all unsafe, substandard dwellings which cannot be economically repaired.
- H-4.c** Encourage development of sound new housing on vacant land within existing neighborhoods which have the necessary service infrastructure.
- H-4.d** Support and encourage all public and private efforts to rehabilitate and improve the existing housing stock.
- H-4.e** Promote public awareness of the need for housing and neighborhood conservation.
- H-4.f** Support actions which foster and maintain high levels of owner-occupancy, particularly in those neighborhoods in which housing quality is declining.
- H-4.g** Promote development of public policies and regulations which provide incentives for proper maintenance of owner-occupied and rental housing.
- H-4.h** Manage development of land within and adjacent to existing neighborhoods to avoid potentially adverse impacts on the living environment.
- H-4.i** Encourage proper maintenance of essential public services and facilities in residential developments.
- H-4.j** Encourage available public and private housing rehabilitation assistance programs in communities where such action is needed to insure preservation of the living environment.
- H-4.k** Facilitate maximum utilization of federal and state programs which can assist lower-income homeowners to properly maintain their dwelling units.
- H-5.a** Encourage enforcement of fair housing laws throughout the city.
- H-5.b** Support programs which increase employment and economic opportunities.
- H-5.c** Encourage development of a range of housing for all income levels in proximity to existing and planned employment centers.

- H-5.d** Encourage full utilization of federal and state housing assistance programs which can enable those persons with unmet housing needs to obtain decent housing at prices they can afford.
- H-5.e** Support development of housing plans and programs, including new government subsidized housing, which maximizes housing choice for minorities and lower-income households commensurate with need.
- H-5.f** Wherever possible, implement adopted land development and resource management policies without imposing regulations which have the effect of excluding housing for lower-income groups.
- H-6.a** Advocate and support proposed federal and state actions to promote energy conservation.
- H-6.b** Promote public awareness of the need for energy conservation.
- H-6.c** Promote development of public policies and regulations that achieve a high level of energy conservation in all new and rehabilitated housing units.
- H-6.d** Encourage maximum utilization of federal and state programs which assist homeowners in providing energy conservation measures.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan will commit the city to a program of rezoning some properties to a zone classification that is consistent with land use proposed in the general plan Land Use Element. The rezoning of these properties will not have an immediate impact on existing residential uses due to the fact that non-conforming uses and activities would be allowed to continue in a manner consistent with the city's zoning regulations. The changes in zoning will, however, have an immediate impact on the types of new residential development that can be proposed in a land use category.

***E. Long-Term Impacts:***

Adoption of the Waterford General Plan will provide for the long-term growth needs of the city and facilitate that growth by establishing policies and standards that will guide future development and the public decision making process regarding growth and development.

***F. Cumulative Impacts:***

The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term pattern for the distribution of population and housing opportunities for this northwestern portion of the county. The population and residential pattern of development established with these two planning documents will impact agricultural productivity for the region, regional circulation and transportation needs for the future, and the overall economic health of the area. Proper planning and sound public policy, such as reflected in the general plan process mandated by state law, will assure that all physical adverse environmental impacts to population and housing are considered in the final decision making process.

***G. Secondary Impacts:***

With increased growth and population and housing, there will be a change in the “small town” character of the community.

***3.13.3 Mitigation Measures***

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There are no mitigation measures needed, beyond the general plan policies identified, to address potential adverse impacts on Population and Housing that can reasonably be expected to result from the adoption and implementation of the Waterford General Plan.

***3.13.4 Level of Significance After Mitigation***

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There are no potential adverse physical impacts on population and housing that can reasonably be expected to result from the adoption and implementation of the Waterford General Plan.

## ***Section 3.14***

### ***Public Services***

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This environmental issue focuses on the impacts of a project on public service facility needs and the potential environmental impacts of developing and/or expanding these facilities. Facility needs can be defined by the need to maintain acceptable levels of service such as response times, or such other community service standards as may apply.

#### ***3.14.1 Environmental Setting***

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##### ***Fire Services***

The city contracts with the Stanislaus Consolidated Fire Protection District (SCFPD) for fire protection services. The SCFPD also serves the city of Riverbank, the communities of Empire, Hickman, La Grange and the Beard Industrial Tract. In all, the SCFPD serves 195 square miles of Stanislaus County out of (5) staffed stations and (1) reserve/volunteer station. The SCFPD provides fire suppression, emergency first responder, rescue services, as well as public education programs for schools, community organizations and other members of the community. In addition, the SCFPD works with the City of Waterford to adopt and enforce codes and ordinances relative to fire and life safety, and reviews development projects within the city for potential impacts on fire protection services.

The district is staffed by (46) professional fire personnel, (25) reserve firefighters, (3) battalion chiefs, (2) staff personnel and the fire chief. The fire district also employs (3) fire investigators, (2) fire inspectors, (1) staff person and the fire marshal with Stanislaus County.

The Waterford fire station, Station 34, is located at 321 “E” Street in the city of Waterford. The station houses (1) type 1 district engine, (1) type 3 district engine, (1) district water tender, (1) rescue and a water rescue boat. This fire station has a service area of 105 square miles, which includes the city of Waterford, and the community of Hickman. Station 34 also provides a strong response into the community of La Grange, which is within the district, but is staffed with reserves. SCFPD also is providing reciprocating services with surrounding fire districts and the city of Oakdale.

The SCFPD has established service goals and response times for emergency calls of 5 minutes, 80% of the time within the city. The response times within the city currently meet this SCFPD goal.

The district has experienced some financial difficulties. During the 2004-2005 fiscal year SCFPD needed to secure a \$1 million tax revenue anticipation note to continue its daily operations. With fire district property owners voting to increase their fire assessment fees, the district was able to pay off the note in July 2005. These financial problems stem from a shrinking pool of volunteers, costly training requirements, insurance, a growing demand for emergency first responder incidents, and limited revenue. Additionally, regulations at the state and federal level are being implemented that mandate the number of firemen that must be present before a fireman can enter a burning structure.

Fire chiefs in Stanislaus County have initiated a plan to address some of these issues. They have proposed a regional fire authority, a voluntary association to cooperate on fire investigations, fire prevention and building plan checks. They have also suggested pooling resources for such areas as training and information systems. According to the Local Agency Formation Commission (LAFCo), it is very likely that at least a couple of small districts will have to merge with other agencies.

The SCFPD has become concerned recently regarding the increasing demand for services within the city. The SCFPD projects this increased demand will require additional staff. The SCFPD will continue to closely monitor the emergency fire and life safety services needs of the city.

### ***Police***

The City of Waterford contracts with the Stanislaus County Sheriffs Department for police services. This department has a workforce of 631 personnel, 199 of which are sworn deputy sheriff-coroner officers and 182 of which are deputy sheriff-custodial (jail) officers.

The sheriffs department breaks Stanislaus County into six “area commands” and the city of Waterford is located in the Southeast Area Command area, which also includes the unincorporated cities of Hickman and La Grange. This area is approximately 250 square miles in size. In the Waterford police substation, located at 320 “E” Street in the city, there are six sworn officers, one sergeant, one lieutenant, and one clerk, in addition to the city’s police chief who is also the Southeast Area commander. There are an additional two deputies per shift that patrol the Southeast Area Command area from the main sheriffs office, one who is assigned to the southeast area and the other beat covers a portion of the southeast area. There is one deputy per shift in the city of Waterford with an overlap during the hours of 2:00 p.m. to 2:00 a.m. Deputies work 12-hour shifts from 7:00 a.m. to 7:00 p.m. There is a swing shift from 2:00 p.m. to 2:00 a.m., but no main sheriffs office coverage during that shift.

Telephone calls for police services are classified by four priority levels. Priority 1 is an emergency call and Priority 4 is a total non-emergency. The department maintains statistics on response times for Priorities 1-3. Times are from when the call is received by 911 to when the deputies arrive at the scene. The following are the response times:

Priority 1	11.75 minutes
Priority 2	16.41 minutes
Priority 3	23.29 minutes

These response times are well within the sheriffs department standards.

The total number of calls for service received by the Sheriffs Department in 2004 was 51,136. Calls for service in the Southeast Area Command totaled 6,483 in 2004.

The sheriffs department has experienced staffing shortages in the past, but the near-term goal is to fill the current unfilled staffing needs for 24-hour coverage in the Southeast Area. The department is developing plans to add a deputy to the community of Hickman and the surrounding area. A new sheriff substation is being planned in the new city administrative offices that would serve Waterford in addition to other southeastern Stanislaus County communities.

### ***Schools***

School students in the city of Waterford attend schools that are part of the Waterford Unified School District. This district serves 2,000 students in pre-kindergarten through the 12<sup>th</sup> grade. The district encompasses the city of Waterford, but extends to outlying rural areas. The district's boundaries border Oakdale to the north, Roberts Ferry to the east, Hickman to the south, and Empire and Modesto to the west.

The district office is located near the intersection of Highway 132 and Reinway in the city of Waterford. The district is comprised of the Richard M. Moon Elementary School, the Waterford Middle School, and Waterford High School, which contains a secondary-level independent study program. The high school was opened in the fall of 2001. The district employs approximately 200 people, 102 classified and 100 certified, and has used the services of about 50 substitute teachers.

Waterford High School is located at 121 S. Reinway Ave. in the city. Richard M. Moon Elementary provides K-4 services and is located at 219 N. Reinway. Waterford Middle School, which serves grades 5-8 students, is located at 12916 Bentley.

The district granted a charter to Connecting Waters Charter School in 2002 making it the 477<sup>th</sup> charter school in California. Its office is located at 219 N. Reinway and operates two schools, one in Ceres and the other in Manteca. The school provides K-12 services and had 1,198 students. The school enrolls students residing in an eight-county area including Stanislaus, San Joaquin, Alameda, Calaveras, Mariposa, Merced, Santa Clara and Tuolumne counties.

The district is currently planning on expanding the Richard Moon Elementary School. The existing school accommodates approximately 870 students. After the completion of the new expansion, the school is projected to house approximately 1,200 students. The new site, approximately 8 acres, will enable the district to adequately house existing and future student enrollments projected by the annexation.

As part of the general plan and annexation process, the Waterford Unified School District has recently prepared a Comprehensive Master Plan in order to determine the projected district need for new facilities. The number of new schools required is based upon student capacities for elementary, middle and high schools. The district and the city will continue to work closely together to identify future school sites in the project area to accommodate future student growth.

Like all school districts in the state, the Waterford Unified School District collects developer impact fees on new development and construction projects to be used for the purpose of construction and reconstruction of school facilities. These impact fees are authorized by Government Code Section 65995. State law provides for the payment of school fees as adequate mitigation to any impacts to schools (the amount is set by State law), and, Government Code section 65996(b) precludes local governments from denying projects based on the inadequacy of school facilities

The critical issue is the limits to mitigating impacts to school facilities under the requirements of state law. Unlike other impact fee systems, school impact fees have established limits.

The state imposed fee system on schools is based on a formula that included conventional school (developer impact) fees, local effort and state (bond) financial participation. It should be noted that a school district has the option to impose higher fees levels, based upon demonstrated need.

There have been numerous discussions regarding the deficiencies of the original SB 50 legislation and its attempt to create a three-legged approach to school financing through state bond funds, developer fees, and local financing. The argument is that this intent of SB 50 has not been accomplished. Local ballot measures, with the super majority requirement of law, along with other local financing measures are difficult to achieve. The result is that local school districts find it difficult to meet their obligations under the SB 50 financing approach.

The impact fee system does not consider varying school construction costs from one area to another and other differences from one school district to another. It is further argued that the system does not contemplate interim facilities and district-wide support facilities that would be required as a result of increasing student enrollments. Funding has remained static while costs have risen for school districts with the least resources to address the revenue gap.

### ***Parks***

The Waterford park system consists of both active and passive recreational areas, including a variety of park types. The city of Waterford has approximately 14.8 acres of active and passive parkland, more than 3 acres of linear strip parks and more than 7 acres of undeveloped parkland, which includes the recently acquired parks along the Tuolumne River corridor.

In Waterford, the inventory of recreation facilities such as sports fields used by the public is relatively low. The city itself provides only one facility, Beard Park. The city relies heavily on the local school district for athletic fields and gymnasiums.

The city has the basis for an excellent park system, however to accomplish this goal the city will need to develop a comprehensive parks and recreation plan. This plan should



address the existing system needs and improvements as well as development and expansion to meet the expected population growth.

The City of Waterford has acquired and is presently attempting to acquire property and/or easements along its southern boundary abutting the Tuolumne River. The city has specific commitments for two properties (APN 080-035-009 for 7.51 acres and APN 080-041-007 for 9.10 acres). The goal of the Tuolumne River Parkland Acquisition Program is to protect an important environmental resource along the river. The river provides habitat corridors for fish and wildlife. It also serves the functional purpose of carrying off storm water runoff during the rainy season. An additional goal of the Tuolumne River Parkland Project is to preserve and enhance existing passive recreational uses along the riverfront area and provide for development of new public recreational uses.

The city of Waterford has a comprehensive park system and there are plans for a substantial expansion of this system within the foreseeable future. At present, existing and planned facilities include:

***Beard Park***

Beard Park is the city's largest and most heavily used park. This 11.61-acre park serves as Waterford's community park. It is the core of Waterford's park and recreation system providing both open space and recreational opportunities. The park contains two lighted softball/baseball fields with a concession stand, an open turf area with goals used for soccer, two tennis courts, a large children's play area with play structures, two picnic shelters (4,010 and 610 square feet) with barbecue grills, and restrooms. In general, the park is very well maintained, however, the park appears to have been developed one project area at a time and lacks any real consistency.

The park is also home to the city's community center. The community center houses the city council and planning commission chambers. It also houses several different community organizations including the senior lunch program. The center is available for rental and is heavily used by the residents of Waterford.

Possible upgrades for Beard Park include:

- Installation of paved basketball court next to tennis courts
- Providing additional parking with blacktop surface and removable bollards next to ball fields
- Replacing wooden light poles with metal poles on ball field
- Providing path system within the park to improve continuity
- Providing additional trees and benches, especially near the play area

***Skyline Park*** This park is currently owned by the City of Modesto; and contains a municipal water well. The well is fenced and the rest of the site is landscaped with grass and newly planted trees. The property is approximately 1.16 acres in size. The park has one picnic table. The lack of amenities and lack of parking spaces (no off-street parking) makes the park uninviting. Additionally, any improvements to the park must first be approved by the City of Modesto.

***Basin Park*** Basin Park is a shallow detention basin located within a newly developed single-family residential area. The site was dedicated for park use as part of the development agreement between the city and the subdivision. The 1.97-acre park contains a turf area within the rectangular depression that takes up most of the park. It has a sidewalk and benches along its southern perimeter. Even though the park has few amenities and offers only limited shade because of newly planted trees, there is a pleasant character to this park. The park is used year round by baseball and soccer teams for practice. The park typically is flooded 2-3 times a year during the winter rainy season.

***Caro Park*** This 2.50-acre site was recently purchased by the City of Waterford; and is part of the Tuolumne River Parkland Acquisition Project. Although this park still has a single family dwelling on the site, its overall condition is currently very good. The site has been well maintained, and has a large grass area and many mature trees. Given these conditions and its location adjacent to the Tuolumne River it has the potential to be a very popular neighborhood park. A master plan should be considered to guide the future development of this park and the whole Tuolumne River Parkland system.

***River Pointe Park*** This linear park is also part of the Tuolumne River Parkland area. It is located between single-family residential houses to the north and the Tuolumne River to the south. Its width varies between 75 and 125 feet. This narrow corridor is very wooded and has an existing dirt trail that runs approximately 2000 feet. This site was given to the city as part of a development agreement with the River Pointe Subdivision project. This property is currently undeveloped and overgrown with weeds, trees and shrubs. The city plans to clean the property of its non-native debris and include it in the overall river trail system. The existing trail through the property will be utilized and no native materials will be removed from the site.

***Lambert Site*** The city is considering the acquisition of this 7.51-acre parcel. This property is located next to the Caro site, along the Tuolumne River. Given the size of the parcel, if acquired, this property is likely to be maintained as a city neighborhood park. Specific improvements and plans have not yet been prepared, but typically parks in this size category offer picnic tables, trails and open grass areas for passive uses. If the city acquires this site it will be able to link over 3000 feet of riverfront parklands along the Tuolumne River.

***Tuolumne River Parkway*** Additional planned future expansion of the Tuolumne River Parkland Acquisitions Project includes a 9.1-acre parcel located on the western side of town just south of the bluff-line adjacent to the wastewater treatment plant facilities. The city is also considering purchasing other parcels along the Tuolumne River. This proposed expansion entails connection parks and providing riverfront access along the entire length of the riverfront in the city limits.

***Triangle Park*** This site is the size of a single-family residential lot. The site has been owned by the city for a number of years and was acquired for park use. However, given the site's small size, approximately 0.18 acres or 7,760 square feet, and limited

recreational value, the city is now in the process of disposing of this future mini-park. If the site is sold, proceeds could be used to develop or upgrade other nearby parks.

***Bretheren Park*** This site is currently undeveloped with no landscaping. The park, however, appears to get some use, there is a basketball rim and backboard at the site. The property is in the midst of a multi-family residential neighborhood. Although the park is small, 0.38 acres or 16,600 square feet, it has some potential to provide recreational value to this multi-family area, which mainly consists of apartments with limited outdoor space.

***Strip Parks*** The city of Waterford currently has four neighborhood strip parks. These linear parks are 50 feet wide greenway corridors containing a paved path. They include the three Welch Street strip parks and the Bonnie Brae strip park. The Welch Street strip parks were constructed in three phases. The final phase is yet to be developed as of the date of this report. When completed the Welch Street strip parks will be approximately 2,580 feet in length. Although these parks contain only a few amenities, (landscaping, park benches and paved internal pathways), they are heavily used by the surrounding neighborhood.

Maintenance of all parks and recreational facilities is provided by the Waterford Public Works Department, which is managed by the Director of the Department of public works.

The city has wisely pursued the acquisition of several future park sites to meet the needs of its current and future residents, thereby charting the direction of Waterford's park and recreational needs.

***Regional Recreation*** Known as the "Gateway to Recreation" Waterford plays host to the thousands of people who travel through on their way to the many recreational opportunities in the area such as Turlock Lake State Recreation area, Lake Don Pedro Reservoir, Modesto Reservoir, New Melones Reservoir, La Grange Off Road Vehicle Recreation Area, and Yosemite National Park. The Waterford General Plan contemplates three additional "regional parks", two of which are to be located along the Tuolumne River near the urban limits of the existing and planned city.

Parks and recreation facilities are further discussed in the Recreation Chapter 3.15

### ***Library and Cultural Services***

The city of Waterford relies on the Stanislaus County Public Library for library services. The Waterford branch of the Stanislaus County Public Library is located at 324 "E" Street. The Waterford branch has .27 square feet of building space per capita, and 2.8 volumes per capita. The American Library Association's standard is two to four volumes per capita, of 0.5 square feet per capita.

Currently, the Waterford branch is 2,170 square feet, but according to the American Library Association, the branch should be at least 6000 square feet. Waterford has approximately 22,000 volumes. The nearest library outside of Waterford is in Empire and the Waterford Library is part of the Oakdale region of libraries.

The Stanislaus County public library system has more than 753,000 books, books on tape/cd, videotapes, magazines, newspapers and premium online databases. These items may be requested at any branch and can be transferred to the preferred locations by the library's delivery system, usually within a few days.

The Waterford branch offers weekly *Story-Times* to children and families. Last year 84 programs were offered and 1,514 children and families attended *Story-Times* and other events.

It is recommended that the library be upgraded so that it meets local and community needs. Recommendations and unmet needs include:

- New 6,000 square feet facility
- Current facility has no adequate seating, no space for computers, no community meeting room and limited parking
- More community outreach

### ***General Public Facilities***

The City of Waterford owns and operates several community facilities to serve the needs of its citizens. Community facilities include city Hall, located at 320 "E" Street, the city corporation yard, the city waste Water Treatment Facility and the community center, located at Beard Park.

In partnership with the county of Stanislaus, the City of Waterford has acquired a site to develop new City of Waterford administrative offices, a new east county sheriff's substation, and an expanded county branch library. Several locations were explored, and the chosen site is located along "E" Street between Yosemite Boulevard (Hwy 132) and Welch Street. The City of Waterford has purchased the site and Stanislaus County is a potential partner in this project. Preliminary estimates are \$5,410,151 (2005 dollars) with both the city and county each paying roughly half.

### ***3.14.2 Environmental Impacts***

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To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in the demand for public services and facilities such as libraries, police and fire facilities, administrative office space, schools, etc., will result. The city's existing facilities will require enhancement to accommodate such increases. In general, development within the planning area could potentially affect the delivery of a variety of public services. With growth and development, existing patterns of urban services will change and new services and service delivery systems may be required. The development of these new services and service delivery systems may result in the need for new public facilities and facility sites in the expanding urban area.

#### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Public Services as follows:

- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
  - i). Fire protection?
  - ii) Police protection?
  - iii) Schools?
  - iv) Parks?
  - v) Other public facilities?

#### **DEFINITION OF ISSUE**

Growth and development typically entails the expansion of public services that may involve the development of new or expanded public service facilities. These new or expanded facilities may cause significant adverse impacts on the physical environment as a result of construction. The physical environmental impacts of new or expanded facilities resulting from the need to maintain acceptable public service ratios, response times or other performance objectives is the focus of this topic analysis.

#### ***ASSESSMENT OF FIRE PROTECTION FACILITIES:***

##### **DEFINITION OF ISSUE**

The term "fire protection facilities" includes fire stations or "fire house" facilities, training facilities, dispatch centers, communications facilities and other related facilities for the purposes of providing fire protection services. Projects may result in demand for fire protection services that exceed the existing facility capacity or result in the extension of fire protection service areas beyond the acceptable fire response time service standards established by the community. This issue entails the direct impact on fire protection facilities.

##### **THRESHOLD CRITERIA**

A project will normally have a significant impact on a fire protection facility if it would substantially interfere with the operations of an existing fire protection facility, or would put additional demands on a fire protection facility that is currently over-utilized. The impact will be measured based on existing fire protection facility utilization and capacity compared to the increment of new demand created by the project. A project that would result in the creation of a service response time that exceeds the adopted fire service response time for the community may result in the determination of the need for a new fire protection facility and/or a determination of a significant impact on the provision of fire protection services in the community. The Stanislaus Consolidated Fire Protection District has established service goals and response times for emergency calls of 5 minutes, 80% of the time within the city.

Where a project would result in the increase of 5% or more in the need for new or expanded fire protection facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of fire protection facilities, the impacts of

fire protection facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

***ASSESSMENT OF POLICE PROTECTION FACILITIES:***

**DEFINITION OF ISSUE**

The term "police protection facilities" includes police stations, training facilities, dispatch centers, police parking and vehicle maintenance facilities, communications facilities and other related facilities for the purposes of providing police protection services. Projects may result in demand for police protection services that exceed the existing facility capacity or result in the extension of police protection service areas beyond the acceptable police and emergency response service standards established by the community. This issue entails the direct impact to police protection facilities.

**THRESHOLD CRITERIA**

1. A project will normally have a significant impact on police protection facility if it would substantially interfere with the operations of an existing police protection facility, or would put additional demands on a police protection facility that is currently over-utilized. The impact will be measured based on existing police protection facility utilization and capacity compared to the increment of new demand created by the project.
2. A project will normally have a significant impact on police protection when the project will result in the officer-per-resident ratio exceeding the standard established by the city Council or result in the determination of need for a new police protection facility.
3. Where a project would result in the increase of 5% or more in the need for new or expanded police protection facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of police protection facilities, the impacts of police protection facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

***ASSESSMENT OF SCHOOL FACILITIES:***

**DEFINITION OF ISSUE**

The term "school facilities" includes public school classrooms, libraries, cafeterias, administrative facilities, private and public parking areas, bus maintenance and parking facilities and other types of facilities necessary for the operation of a public school. This issue entails the direct impact to, and demand for, public school facilities.

**THRESHOLD CRITERIA**

A project will normally have a significant impact on public school facilities if it would substantially interfere with the operations of an existing public or private school facility, or would put additional demands on a public school facility that is currently overcrowded. The impact will be measured based on existing public school facility utilization and capacity compared to the increment of new demand created by the project.

Where a project would result in the increase of 5% or more in the need for new or expanded public school facilities and where the general plan and zoning maps of the city

do not designate adequate areas for expansion of public school facilities, the impacts of public school facility expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

***ASSESSMENT OF PARKS AND PARK FACILITIES:***

**DEFINITION OF ISSUE**

The term "public parks and facilities" includes public park land, playfields, playgrounds, ball courts, recreation maintenance facilities and related facilities necessary for the operation and maintenance of park and recreation facilities in the community. This issue entails the direct impact to, and demand for, public recreation facilities.

**THRESHOLD CRITERIA**

A project will normally have a significant impact on public recreation facilities and services if it would substantially interfere with the operations of an existing public recreation facility, or would put additional demands on a public recreation facility that is currently overcrowded or serving a population in excess of established recreation facility standards. The impact will be measured based on existing public recreation facility utilization and capacity compared to the increment of new demand created by the project.

Proposed general plan goals and policies can be found in the Recreation section of this document.

***ASSESSMENT OF OTHER PUBLIC FACILITIES:***

**PUBLIC LIBRARIES**

**DEFINITION OF ISSUE**

The term "public libraries" includes public library facilities and services. This issue entails the direct impact to, and demand for, public library facilities.

**THRESHOLD CRITERIA**

A project will normally have a significant impact on public library facilities and services if it would substantially interfere with the operations of an existing public library facility, or would put additional demands on a public library facility that is currently overcrowded. The impact will be measured based on existing public library facility utilization and capacity compared to the increment of new demand created by the project.

Where a project would result in the increase of 5% or more in the need for new or expanded library facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of library facilities, the impacts of library facility expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

**PUBLIC OFFICES AND ADMINISTRATIVE FACILITIES**

**DEFINITION OF ISSUE**

The term "public offices and administrative facilities" includes public administrative offices, public meeting rooms and related facilities and services. This issue entails the direct impact to, and demand for, public offices, administrative facilities and services.

#### **THRESHOLD CRITERIA**

A project will normally have a significant impact on public offices, administrative facilities and services if it would substantially interfere with the operations of an existing public office or administrative facility, or would put additional demands on a public office or administrative facility that is currently overcrowded. The impact will be measured based on existing public office and administrative facility utilization and capacity compared to the increment of new demand created by the project.

Where a project would result in the increase of 5% or more in the need for new or expanded public offices, administrative facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of public offices, and administrative facilities and services, the impacts of public offices, administrative facilities and services expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

#### **COMMUNITY CULTURAL FACILITIES**

##### **DEFINITION OF ISSUE**

The term "cultural facilities" includes public community centers, museums, art centers, senior and youth facilities, public meeting rooms and related facilities and services. This issue entails the direct impact to, and demand for, cultural facilities and services.

#### **THRESHOLD CRITERIA**

A project will normally have a significant impact on cultural facilities and services if it would substantially interfere with the operations of existing cultural facilities, or would put additional demands on cultural facilities that are currently overcrowded. The impact will be measured based on existing cultural facilities utilization and capacity compared to the increment of new demand created by the project.

Where a project would result in the increase of 5% or more in the need for new or expanded cultural facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of cultural facilities, the impacts of cultural facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

#### ***B. Potential Significant Impacts:***

##### ***Public Service Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential public services impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the need for new or physically altered governmental facilities, the construction of which could cause*



*significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

- i). Fire protection?*
- ii) Police protection?*
- iii) Schools?*
- iv) Parks?*
- v) Other public facilities?*

Local governments have authority to implement impact fee systems on new development to assure that adequate resources are available to meet public facility needs resulting from growth. The location, design, and development of these facilities are regulated under current development and environmental laws. Where applicable, the location of these facilities is accommodated within the general plan either by direct reference or by establishment of standards for location relative to the maintenance of community service standards.

***Public Services and Facilities Impacts Found to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, no potential public services impacts are likely to result in a significant adverse environmental physical impact due to project implementation.

***C. Proposed General Plan Goals & Policies:***

The Public Services Chapter of the Waterford General Plan contains the following policies related to; Public Safety ( Fire and Police), Education, Library and Cultural Services.

***Goal Area-- Public Services***

- Public Services & Facilities (PF) Adequate Public Services and Facilities to Meet the Needs of the city's Residents
- Public Services & Facilities (PF) Cost-Effective Public Service Delivery Systems and Facilities
- Public Services & Facilities (PF) Public Services and Facilities Standards that are Applied Uniformly Throughout the city

***Policies***

- PF-1.1** Establish and maintain adequate & uniform municipal infrastructure and service standards.
- PF-1.2** Establish and maintain a program for cost effective operation and maintenance of municipal services and facilities to meet community needs.
- PF-1.3** Establish and maintain a program for cost effective expansion of municipal services and facilities to meet future community growth needs.
- PF-1.4** Establish and maintain facility maintenance programs that assure maximum utilization of capital equipment and facilities.

**PF-1.5** Assure that expansion of the city results in the enhancement of municipal services and facilities within Waterford without increasing costs to the existing city.

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on public services in the city. Implementation of the plan will result in the need for new public facilities.

***E. Long-Term Impacts:***

Long term impacts of growth and development are expected to result in a balance between increased need for public service facilities and programs and planned increases in public services. Growth and development will generally result in the increase of public service demands, and new facilities will be planned by the city, county and other public service entities such as the Modesto Irrigation District, the Waterford Unified School District, the City of Modesto's water service facilities in the city of Waterford, the Stanislaus Consolidated Fire Protection District and others in response to this need.

The law provides various fee mechanisms that can be implemented by local governments to construct new service facility needs created by growth. Each of these public entities presently have fee programs in place as provided by law. As part of the capital improvement program (CIP) and normal governmental budget management processes, these fees are periodically reviewed and updated to reflect updated needs assessments, development/construction costs and operating costs of facilities and services.

***F. Cumulative Impacts:***

Growth in the public sector is expected to mirror growth and development in the private sector of the city. Development impacts resulting from this growth, as it relates to physical impacts on the environment, are accommodated within the context of this document and normal development/construction permit review provisions of the city.

Cumulative issues with respect to public services fall in the areas of supporting infrastructure necessary to operate and maintain public facilities and provide public services. In the case of schools, circulation and transportation needs of school facilities along with public utilities such as water, sewer and storm drain system.

These issues can be further complicated by the inability of a school district to develop new school facilities in a timely manner to respond to increased school enrollment. To address the overcrowded conditions of schools, a district may need to transport students to other schools within the district. The required private vehicle transportation of students to address the overcrowded conditions of schools and the need to transport these students to other schools within the district, and the added required private and public vehicles of the teachers and employees of the district that would be required as a result of the students generated by growth are possible secondary (cumulative) impacts resulting from lack of adequate school facilities.

Another cumulative aspect of the inability of public service providers to develop adequate facilities is the “social” and “economic” costs on service populations. As an example, overcrowded schools have the potential to create social and psychological impacts on students leading to behavioral problems requiring law and school enforcement on and off campus.

***G. Secondary Impacts:***

Development of new public service facilities may result in the creation of impacts that are not contemplated in this environmental impact report. New construction programs for public facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

***3.14.3 Mitigation Measures***

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Mitigation of increased public service demand and the need for new or expanded public service facilities within Waterford’s planning area is typically addressed through the implementation of development impact fees for facility development, as provided by state law, in addition to establishment of special districts for operations and maintenance. The city will work with public agencies to implement impact fee programs for both local (city) improvements and regional fee programs implemented by Stanislaus County. Additionally, the city will assist in the enforcement of other impact fee programs implemented by public service jurisdictions providing services within the city’s municipal boundaries such as the City of Modesto (water service), Waterford Unified School District and the Consolidated Fire Protection District.

With the implementation of these impact fee programs, no mitigation measures are proposed as there are no significant adverse impacts to public services expected to result from the adoption and implementation of the Waterford General Plan Update.

***3.14.4 Level of Significance After Mitigation***

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No significant adverse physical impact on public services is expected to result from the general plan’s adoption and implementation.

## ***Section 3.15***

### ***Recreation***

This environmental issue focuses on the impacts of a project on recreation, including existing recreational facilities or the future need for new facilities that could have an impact on the environment.

#### ***3.15.1 Environmental Setting***

The city of Waterford has approximately 14.8 acres of active parkland, more than 3 acres of linear strip parks and more than 6 acres of undeveloped parkland, which includes the recently acquired Caro and River Pointe parks along the Tuolumne River corridor.

**Table 3.15.1**  
**Existing and Proposed Parks and**  
**Planned Improvement Facilities**

<b>Name</b>	<b>Location</b>	<b>Acres</b>	<b>Type</b>	<b>Status</b>	<b>Ownership</b>
Beard Park	Between Tim Bell Road and North “C” Street, and south of the MID canal	11.6	Community	Existing	City of Waterford
Skyline Park	Northeast corner of Skyline Blvd. and Bentley Street	1.2	Mini	Existing	City of Modesto
Basin Park	Goldmine Ave. between Magnetite Way and Cinnibar Way	2.0	Mini	Existing	City of Waterford
Caro Park	Southwest corner of Hickman and Appling Road	2.5	Neighborhood	Undeveloped	City of Waterford
Riverpointe Trail	North of the Tuolumne River and east of Appling Road	3.1	Mini/Linear Natural Corridor	Undeveloped	City of Waterford
Bretheren Park	Northeast corner of Dorsey Street and “H” Street	0.4	Mini	Undeveloped	City of Waterford
Welch Strip Park #1	Welch Street, between Tim Bell Road and Baneberry Crt.	1.1	Linear - Greenway	Existing	City of Waterford
Welch Strip Park #2	Welch Street, between Baneberry Court and Amy Ln.	0.9	Linear - Greenway	Existing	City of Waterford
Welch Strip Park #3	Welch Street, between Amy Lane and Bentley Street	1.0	Linear - Greenway	Undeveloped	City of Waterford
Bonnie Brae Strip Park	Between Bonnie Brae and MID Canal	1.2	Linear - Greenway	Existing	City of Waterford
APN 080-035-009	Tuolumne Corridor Northeast corner of Hickman Road Bridge and Tuolumne River	7.5	Neighborhood / Natural Corridor	city currently pursuing	City of Waterford
APN 080-041-007	Tuolumne Corridor North of the Tuolumne, southeast of South Reinway Avenue	9.1	Neighborhood / Natural Corridor	city currently pursuing	City of Waterford

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In addition, the city is currently pursuing another 16.6 acres along the north bank of the Tuolumne River. Tables 3.15.1 through 3.15.5 illustrate existing parks, proposed new parks, planned improvements to facilities, recommended standards and future recommended standards.

Table 3.15.1 shows the existing and proposed new park facilities. The general plan designates “floating” parks to plan for community and neighborhood parks but that will fit most effectively with new residential subdivisions. In addition, the future school site is proposed as a floating site to most effectively utilize future development patterns and allow for flexibility.

**Table 3.15.2**  
**Existing and Proposed School Facilities**

<b>Name</b>	<b>Location</b>	<b>Acres</b>	<b>Type</b>	<b>Ownership</b>
Waterford High School	121 South Reinway Avenue	40+	High School	District
Waterford Middle School	12916 Bentley Street	10.1	Middle School	District
Richard M. Moon Elementary School	219 North Reinway Avenue	9.6	Elementary	District
(Proposed) Richard M. Moon Elementary School -Expansion	Southeast corner of Yosemite Blvd. (Hwy 132) and South Reinway Avenue	8+	Elementary (Expansion)	District

**Table 3.15.3  
Existing and Proposed Parks and  
Planned Improvement Facilities**

	Ballfield	Tennis Court	Playground	Horseshoe Pits	Picnic Area	Shelter	Restroom	Tuolumne Corridor	Paved Corridor	Pool	Stadium	Misc. Play Fields	Community Center
Beard Park	2	2	✓	✓	✓	2	✓					✓	✓
Skyline Park					✓							✓	
Basin Park (Undeveloped)					✓				✓			✓	
Caro Park (Undeveloped)			✓		✓		✓	✓	✓				
Riverpointe Trail (Undeveloped)	✓		✓				✓	✓					
Bretheren Park (Undeveloped)	✓		✓				✓						
Welch Strip Park #1									✓				
Welch Strip Park #2									✓				
Welch Strip Park #3 (Undeveloped)									✓				
Bonnie Brae Strip Park									✓				
APN 080-035-009 (Not Acquired)			✓		✓	✓	✓	✓				✓	
APN 080-041-007 (Not Acquired)			✓		✓	✓	✓	✓				✓	

**Table 3.15.4  
Summary of Waterford's  
Current Park Inventory & Ratio  
(Acreage/1000 Population) vs. Recommended Standard**

Park Area Type	Existing Park Inventory (Acres)	Current Ratio (Acres/1,000 Pop.)	Recommended Standard (Acres/1,000 Pop.)	Additional Parkland Need (Acres)
Mini-Park	3.16	0.41	-	-
Neighborhood Parks	-	0.00	1.50	11.70
Community Parks	11.61	1.49	1.75	2.04
Linear Parks	3.15	0.40	1.75	10.50
Subtotal (Existing Parkland)	17.92	2.30	5.00	24.24
<b><u>Future Park Development and Acquisition</u></b>				
city Owned - Undeveloped	6.19	0.79	0.00	(6.19)
city Currently Pursuing	16.60	2.13	0.00	(16.60)
<b>Total</b>	40.71	5.22	5.00	1.45

**Table 3.15.5**  
**Summary of Waterford's**  
**Current Park Inventory &**  
**Future Recommended Standard**

Park Area Type	Existing Park Inventory (Acres)	10,000 Population Demand (Acres)	20,000 Population Demand (Acres)	30,000 Population Demand (Acres)
Mini-Park	3.16	0.00	0.00	0.00
Neighborhood Parks	-	15.00	30.00	45.00
Community Parks	11.61	17.50	35.00	52.50
Linear Parks	3.15	17.50	35.00	52.50
Undeveloped	6.19	-	-	-
city Currently Pursuing	16.60	-	-	-
<b>Total</b>	<b>40.71</b>	<b>50.00</b>	<b>100.00</b>	<b>150.00</b>

### ***3. 15.2 Environmental Impacts***

To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in the demand for recreation facilities and services is expected. The city's recreation facilities will require enhancement to accommodate such increases. Other parks, playgrounds, ball fields and related recreation facilities will need to expand to accommodate new growth and development.

#### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Recreation as follows:

- *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*
- *Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?*

#### **DEFINITION OF TERMS**

A *Local Park Facility* serves the daily needs of a defined neighborhood or group of neighborhoods within an urbanized area. Local parks are divided into three major classes; neighborhood park, community park facilities and play fields, and local trails/corridors. Local park acreage should provide for three primary types of recreation; open area for passive recreation and relaxation, active sports areas for sports fields and court games, and neighborhood or community centers which accommodate a wide variety of community serving activities catering to all age groups.

A *Neighborhood Park* serves a large area and has a wide variety of facilities to serve a larger and more diverse population. Facilities within neighborhood parks vary depending on the recreational resources available in the neighborhood. Some neighborhoods may have school facilities that supplement the city's park facilities resources. In some instances, neighborhood park facilities approach community park standards (i.e., swimming pool, lighted baseball diamonds and community meeting hall). Although there is a hierarchy to parks, there also exists certain overlap among the different levels of parks and their uses.

*Community Park Facilities and Play Fields* serve significant portions of an urban area based on size and type of facilities. At a minimum, a community park serves several neighborhoods and, depending on population density, from 5,000 to 15,000 people. A community park is the nucleus of the park system and is usually the location where members of the community congregate for city-wide functions or programs. It is usually over 15 acres in size and includes neighborhood playground facilities as well as appropriate facilities for city-wide use. Or, it may be more open space oriented providing the community a break within the urban environment or contact with nature and pleasant surroundings in which to engage in a variety of active and passive recreational activities.

Features of a community park may include large picnic areas, swimming pool, baseball diamonds, nature trails, soccer fields, playgrounds, community building or other city-wide activity areas. Beard Park is a community park.

*Local Trails and Corridors* such as the Tuolumne River corridor include paths and trails that are designed to accommodate non-motorized recreational travel through areas removed from vehicular traffic. Local trails also serve as access to the regional trail network.

*Regional Parks and Facilities* such as the Modesto Reservoir Regional Park serve many cities. Often the focal point of a regional park is a lake, river or other natural resources. Typically counties and the state provide regional parks. If distant from an urban area, their accessibility is generally limited to those who can drive.

A *Recreation Park* provides recreation facilities that serve both general and specialized interests. It affords the opportunity for recreation experiences of a scope and quality that will attract attendance from the widest possible range of age and interest of the area's population.

A *Preserve* is an extent of land preserved from development in order to protect unique scenic resources, unusual native plants and animals, geologic phenomena, or historical sites and buildings. It may be included as part of another regional park/facility class or preserved as a single unit.

*Regional Open Space* includes the preservation of land which in its natural condition would maintain or enhance the esthetic quality of a regional park/facility, a major portion of the county's environment, or contribute to the management of urban development.



A *Specialized facility* is a singular facility or area that provides specialized recreation opportunities that are of regional or county-wide significance. It may be an individual element, or it may be a unit of a larger or more inclusive regional park/facility.

*Regional Trail, Greenway or Corridor* are areas and facilities that are intended to accommodate non-motorized recreational travel through areas removed from vehicular traffic. They connect the various park sites with paths exclusively for pedestrians and bicyclists. Greenways weave through the residential neighborhoods connecting larger public uses (schools, open space, and commercial uses) and provide many points of physical and visual access to the park sites. Some greenways may also act as mini-parks because of play and exercise equipment placed along the paths. Other greenways act as valuable open space greenbelts through a neighborhood.

#### THRESHOLD CRITERIA

A project will have a significant impact on recreation if it would cause an increase in the demand for recreation when measured against the following standards. Such standards are multi-jurisdictional in terms of supply and are to be used as a method of measuring whether an impact will be significant to the point of requiring an environmental impact report.

##### A. LOCAL PARKS/FACILITIES:

1. *Service Standard:* A variety of park types shall be provided in a timely manner in accordance with the pace of new development. Overall, provide a total of 5 acres of parkland per 1000 residents in the city.
2. *Greenways and Linear Parks*  
*Standard:* There should be at least 1.75 acres of greenways or linear parks provided per 1,000 residents. Greenways should be designed in association with bike paths, trails, and pedestrian ways and follow the river corridor, local creeks, canals, power line easements, etc.
3. *Neighborhood Parks*  
*Standard:* Neighborhood parks should be distributed so that most areas are less than one-mile away from any park. Within any square mile quadrant bound by arterial roads, provide a total of 1.50 acres of neighborhood parks per 1,000 residents.
4. *Community Parks*  
*Standard:* There should be at least 1.75 acres of community parks provided per 1,000 residents. Community parks are major recreation facilities and contain many ball fields, play areas, picnic opportunities and other facilities.

A project will have a significant impact on recreation if it would impede future development of recreation parks/facilities and/or regional trails/corridors designated on

an adopted recreation trail or similar plan.

***B. Potential Significant Impacts:***

***Recreation Impacts Found Not to be Potentially Significant:***

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential recreation impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

New park sites will be necessary as the population grows. As population grows to 10,000 people in Waterford, there should be a minimum of 50 acres of dedicated park land based on recommended standards. The addition of new parks would also increase city maintenance costs.

In addition to the social need for additional parks, the criteria that should be considered as they are cited include; joint uses such as strip parks and bike paths along canal reservations, detention basin-park development, and development of parks and recreational facilities in conjunction with the Waterford Unified School District.

Currently, within the proposed Sphere of Influence boundary there is no existing parkland. If the maximum five acre per 1,000 person standard is required, assuming a planned build-out of approximately 19,000 people, then a total park inventory of 95 acres would be required.

This figure may result in the creation of neighborhood parks within residential areas. Additional recreational land uses, such as golf courses and playing fields, may be necessary unless these can be provided at school sites.

New city parks used in conjunction with detention basins would provide a more aesthetically pleasing method of drainage control. This is one alternative for development of neighborhood parks within new subdivisions. A variation of this would be to convert existing detention basins to joint detention basin/park facilities. In order to accomplish this, detention basins would have to be shallow and could not retain water continuously throughout the year.

Cooperative park and school facilities development would allow the city to establish park and recreation facilities in collaboration with the development of new school sites. While joint development of facilities would ensure more efficient use of recreational investments, it poses some limitations on site location and types of facilities.

- *Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?*

The city has been collecting park in-lieu fees on new residential development to maintain existing parks. Park land reserve is being designated at various locations in the proposed Waterford SOI and will be developed when populations are large enough to support them and/or as new development agrees to dedicate land for recreational purposes.

As a result of plan implementation, additional new parks and recreation facilities are expected to be constructed. These park improvements will be subject to subsequent site specific and facility specific environmental review that will supplement the environmental information contained in this program environmental impact report. New parks and recreation facilities will be required to comply with all environmental rules and regulations in effect at the time of subsequent project approval as will all other subsequent general plan implementation actions.

*Recreation Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, a potential recreation impact is not likely result in a significant adverse environmental impact from plan adoption and/or implementation.

**C. Proposed General Plan Goals & Policies:**

The Conservation Chapter of the Waterford General Plan contains the following policies regarding recreation:

**Goal Area- Public Facilities**

Public Facilities (PF) High Quality Recreational Open Space  
Public Facilities (PF) Adequate Public Recreation Facilities  
Public Facilities (PF) Comprehensive Urban Trail and Bike Path System

**Policies**

**PF -2.1** Provide high-quality park and open space facilities to serve the needs of a growing population.  
**PF -2.2** Maintain and expand the city's bikeway and trail system.  
**PF -2.3** Maintain the city's existing high-quality open space facilities.  
**PF -2.4** Develop a diverse and integrated system of park facilities throughout the city.

**Goal Area- Open Space**

Open Space (OS) High Quality Recreational Open Space  
Open Space (OS) Adequate Public Recreation Facilities  
Open Space (OS) Comprehensive Urban Trail and Bike Path System

**Policies**

**OS-C.1** Provide high-quality park and open space facilities to serve the needs of a growing population.

**OS-C.2** Maintain and expand the city's bikeway and trail system.

***C. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on recreation resources in the city.

***D. Long-Term Impacts:***

Long term impact of growth and development are expected to result in a balance between increased need for recreation facilities and programs, and increases in facilities and services.

***E. Cumulative Impacts:***

Growth in recreation facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.

***F. Secondary Impacts:***

Development of new recreation facilities, including parks and playgrounds, may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for parklands and recreation facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

***3.15.3 Mitigation Measures***

Mitigation of increased recreation demand and the need for new or expanded recreation facilities within Waterford's planning area is typically addressed through the implementation of development impact fees as provided by state law. The city will support and implement in impact fee programs for both local (city) improvements and regional fee programs implemented by Stanislaus County. Additionally, the city will assist in the enforcement of other impact fee programs implemented by public service jurisdictions providing services within the city's municipal boundaries.

With the implementation of these impact fee programs, no mitigation measures are proposed as there are no significant adverse impacts expected to result from the adoption and implementation of the Waterford General Plan with respect to public services.

***3.15.4 Level of Significance After Mitigation***

No significant adverse physical impact on recreation is expected to result from the general plan's adoption and implementation.

## ***Section 3.16***

### ***Transportation and Traffic***

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This environmental issue focuses on the impacts of a project on transportation systems including roads and highways, public transportation systems, pedestrian circulation and access, parking, and/or emergency access. Impacts can be in the form of new hazardous circulation or traffic conditions, conflict with existing plans or policies or creation of an unacceptable traffic level on a transportation system or facility.

#### ***3.16.1 Environmental Setting***

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The city of Waterford is located on State Highway 132. This highway provides access between Waterford and the City of Modesto, approximately 10 miles to the west, the Stanislaus County seat and the largest city in Stanislaus County. Modesto is located along the Highway 99 corridor, the main north-south arterial on the east side of the central valley.

The roads in the Waterford planning area serve different purposes for various land uses. Local and collector streets provide low-volume routes for residents to travel to and from their residential neighborhoods. Arterial and state highways are used to distribute goods and products, provide high-volume traffic routes for employees traveling to industrial and commercial areas, and route regional traffic.

The city uses a functional road classification system together with the general plan land uses to make up its circulation plan. The city's current traffic volumes are within the carrying capacity of the city's streets.

#### ***Streets and Roads***

Automobile and truck transportation are the primary sources for moving people and commodities in and through the city of Waterford. The roads in the Waterford Planning Area serve different purposes for various land uses.

Local roads in residential neighborhoods provide low volume routes for residents to gain access to retail shopping centers and other activities whereas major streets are used to distribute products (truck traffic), and to provide high volume routes for employees to access industrial and commercial areas.

The city of Waterford uses a functional road classification system together with its general plan land uses to make up its circulation plan. The design characteristic of different roads and their relationship to one another is based upon their capacity to serve the functions of access and movement. Figure 3.16.1 illustrates the circulation system in terms of functional classification and Tables 3.16.1 and 3.16.2 depict needed system improvements, level of service, and forecasted (2030) traffic volume data.

Figure 3.16.1  
City of Waterford  
Circulation System

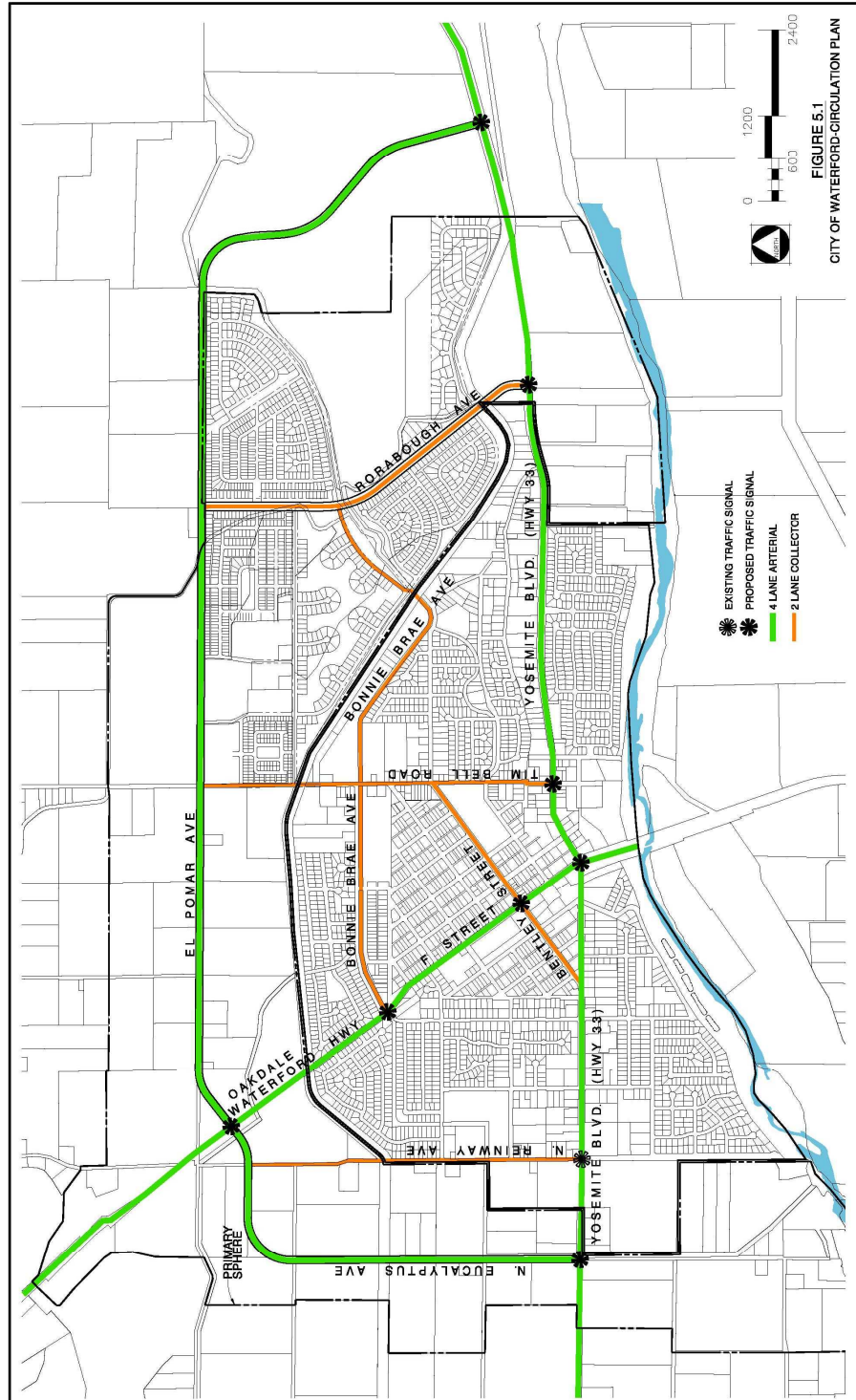


FIGURE 5.1  
CITY OF WATERFORD CIRCULATION PLAN

**Table 3.16.1  
Needed Major Improvement Transportation Projects**

<i>Project #</i>	<i>Project Type</i>	<i>Location</i>
1	Four+ Turn Lanes	Yosemite Blvd. From Urban Limit to Eucalyptus.
2	Four+ Turn Lane	Yosemite Blvd. From Eucalyptus to Reinway
3	Four+ Turn Lane	Yosemite Blvd. From Reinway to Western Ave.
4	Four+ Turn Lane	Yosemite Blvd. From Western Ave. To “F” Street
5	Four+ Turn Lane	Yosemite Blvd. From “F” Street to Tim Bell Rd.
6	Four+ Turn Lane	Yosemite Blvd. From Tim Bell Road to Skyline Blvd.
7	Four+ Turn Lane	Yosemite Blvd. From Skyline Blvd. to Rorabaugh Rd.
8	Four+ Turn Lane	Yosemite Blvd. From Rorabaugh Rd. to Urban Limit
9	Four+ Turn Lane	“F” Street From Urban Limit (south) to Yosemite Blvd.
10	Four+ Turn Lane	“F” Street From Yosemite Blvd. to Urban Limit (north)
11	Two+ Turn Lane	Eucalyptus From Yosemite Blvd. to Star Ave.
12	Two+ Turn Lane	Reinway from Yosemite Blvd. to Star Ave.
13	Two+ Turn Lane	Tim Bell From Yosemite Blvd. to El Pomar
14	Two+ Turn Lane	Rorabaugh Rd. from Yosemite Blvd. to El Pomar (new)
15	Two+ Turn Lane	El Pomar from Oakdale-Waterford to Urban Limit (E)
16	Two+ Turn Lane	Star Ave. from Eucalyptus to Oakdale-Waterford
17	Two Lane	Bonnie Brea from Tim Bell to Bentley
18	New Inters/Link	El Pomar to Star Ave. (across Oakdale-Waterford)
19	Signal/Inters. Imp.	Yosemite Blvd. and Eucalyptus
20	Signal/Inters. Imp.	Yosemite Blvd. and Reinway
21	Signal/Inters. Imp.	Yosemite Blvd. and Pasadena
22	Signal/Inters. Imp.	Yosemite Blvd. and Tim Bell
23	Signal/Inters. Imp.	Yosemite Blvd. and Rorabaugh Rd.
24	Signal/Inters. Imp.	Bentley and Oakdale-Waterford
25	Signal/Inters. Imp.	Bentley and Tim Bell
26	Signal/Inters. Imp.	Bonnie Brea and Oakdale-Waterford
27	Signal/Inters. Imp.	El Pomar and Oakdale-Waterford
28	Add Bridge 2-Lane	“F” Street Bridge-Tuolumne River

**Table 3.16.2**  
**Major Street Improvement Projects**

<i><b>Roadway</b></i>	<i><b>Segment</b></i>	<i><b>2030 ADT</b></i>	<i><b>Classification</b></i>	<i><b>2030 LOS</b></i>
<b><i>East-West Roadways</i></b>				
Yosemite Blvd. (Hwy. 132)	(W) Urban Limit to Eucalyptus	17,182	Arterial 4-Lanes +	C+
“	Eucalyptus to Reinway	13,976	“	C+
“	Reinway to Western Ave.	15,266	“	C+
“	Western Ave. To Oakdale- Waterford Hwy	14,663	“	C+
“	Oakdale-Waterford Hwy. to Tim Bell Rd.	14,087	“	C+
“	Tim Bell Road to Skyline Blvd.	19,257	“	C+
“	Skyline Blvd. to Rorabaugh Rd.	12,039	“	C+
“	Rorabaugh Rd. to Urban Limit (E)	12,244	“	C+
Star Ave.	(W) Urban Limit to Eucalyptus	3,624	2-Lane Collector	C+
“	Eucalyptus to Reinway	8,338	2-Lane Collector+	C+
“	Reinway to Oakdale-Waterford Hwy	12,269	2-Lane Arterial (Future 4-Lane +)	C+
El Pomar	Oakdale-Waterford Hwy. to Pleasant Ave.	15,280	4-Lane Arterial +	C+
“	Pleasant Ave. to Tim Bell Rd.	13,819	2-Lane Arterial (Future 4-Lane +)	C+
“	Tim Bell Rd. to midpoint.	10,742	“	C+
“	Mid-point to Rorabaugh Rd.	2,773	“	A
“	Rorabaugh Rd. to Urban Limit (E)	2,365	“	A
Bonnie Brea	Tim Bell to Bentley (New)	2,047	2-Lane Collector	A
<b><i>North-South Roadways</i></b>				C+
Oakdale- Waterford (F St.)	(N) Urban Limit to Star/El Pomar	17,310	4-Lane Arterial +	C+
“	Star/El Pomar to Bonnie Brea	16,695	“	C+
“	Bonnie Brea to Dorsey	16,647	“	C+
“	Dorsey to Yosemite Blvd. (Hwy 132)	15,815	“	C+
“	Yosemite Blvd. (Hwy 132 to Urban Limit (S)	19,890	“	C+
Rorabaugh Rd.	Yosemite Blvd. to El Pomar	2,500D	2-Lane Collector+	C+
Eucalyptus	Yosemite Blvd. to Star Ave.	5,700D	2-Lane Collector+	C+
Reinway	Yosemite Blvd. to Star Ave.	7,000D	2-Lane Collector+	C+
Tim Bell	Yosemite Blvd. to Bonnie Brea.	5,000D	2-Lane Collector+	C+
“	Bonnie Brea to El Pomar	7,000D	2-Lane Arterial+	C+

Note: D= (Design ADT)

NOTE: This table is derived from the Traffic Model prepared by KD Anderson, Transportation Engineers, in support of the Circulation Element of the Waterford Vision 2025 General Plan Update.



***Proposed Street and Highway Improvements***

***Major Road System*** The circulation system plan for projected new growth areas to the north of Waterford will provide for one-mile grids formed by major arterial and arterial roadways relying on El Pomar (east-west), Eucalyptus, Tim Bell and Hazeldine roads (north-south) as key alignments for this future system. This system will, however, create key congestion points at the present intersections of:

- Highway 132 and Oakdale-Waterford Highway
- El Pomar and Oakdale-Waterford Highway

Other key intersections are:

- Eucalyptus and Highway 132
- Reinway and Highway 132
- Pasadena and Highway 132
- Tim Bell and Highway 132
- Tim Bell and Highway 132
- Tim Bell and El Pomar
- Bentley and Oakdale-Waterford
- Bentley and Tim Bell
- Bonnie Brea and Oakdale-Waterford

Another key objective of this circulation network is to provide a high level of accessibility to the city's "downtown" area. This will require development of "linkage" between the northern and eastern growth areas through established neighborhoods to the downtown area. These linkages will rely primarily on Bentley and Welch streets.

***Tuolumne River Bridge (Hickman Road River Crossing)*** The Tuolumne River bridge is a two-lane bridge that will need to be upgraded to a four-lane crossing. At present, there is capacity on this structure to handle forecasted traffic loads through the year 2020 or 2025 operating at a Level of Service (LOS) of "E" or "F". Programs need to be put in place that will assure funding for this structure by the year 2020.

***Tim Bell Road*** The improvement of Tim Bell Road, as a major roadway within the city's north-south grid system, includes many of the difficulties of planning over time. In the city's grid of major north-south streets, Tim Bell is the link between Highway 132 and the planned city growth areas to the north and northeast. This roadway connects these population centers to downtown Waterford via Bentley and Welch streets. Significant improvements to this roadway will be required to permit it to function at its planned level of service.

***Eucalyptus Avenue*** Improvements to Eucalyptus will require a complete reconstruction of this roadway, from Highway 132 to its planned connection to the Oakdale-Waterford Highway, including a new bridge across the MID Main Canal. As a rural roadway that accommodates normal and low density development, full curb and sidewalk improvements will only be required on the eastern side of the roadway.

***Star Avenue*** Improvements to Star will require improvement to a two-lane collector standard with limited curb improvements to accommodate drainage needs along the roadway.

***El Pomar Road*** Improvements to El Pomar will require a complete reconstruction of this roadway from its connection with Eucalyptus Avenue near the Oakdale-Waterford Highway to the edge of the city's proposed Sphere of influence boundary to the east. Ultimately this roadway is planned to extend to Hazeldine Road. An intermediary connection to Highway 132 is planned along the eastern boundary of the Sphere. As this roadway will be expected to carry some truck traffic by-passing the downtown area of Waterford, it should be constructed to a standard to support heavy trucks.

***Rorabaugh Road*** Development of this new roadway as a "collector" will provide connection between El Pomar and Highway 132. As this roadway will be expected to carry some truck traffic by-passing the downtown area of Waterford, it should be constructed to a standard to support heavy trucks.

***Bonnie Brea*** In order to accommodate cross-town traffic and minimize congestion to Bentley, a new road section is to be constructed along the Waterford Main Canal that connects with the existing Bonnie Brea roadway at Tim Bell and extends along the "Old" Waterford Main Canal alignment to its intersection with Bentley.

***MID Main Canal Bridges*** Currently there are 3 bridges for local traffic over the Modesto Irrigation District's Main Canal in the Waterford urban area: They traverse Reinway Avenue, the Oakdale-Waterford Highway and Tim Bell Road. All serve north-south bound traffic and are critical circulation points in a community that is planning for extended north-south growth. As traffic increases substantially with future growth, the bridge locations will become increasing bottlenecks. Because of size and cost constraints, expansion of these bridges could be difficult.

Completion of the El Pomar (east-west) arterial, which includes an additional crossing at Eucalyptus and to the east toward Hazeldine Road, would assist in distributing north-south traffic more evenly across the MID Main Canal and reduce congestion throughout the urban area.

***Intersections Improvements***

Both street segments (the portion of a street between two specified points) and street intersections (the point of meeting or intersection between a minimum of two streets) can be used to measure traffic impacts on a street circulation system. LOS measures how well traffic is moving on a road segment or at a street intersection in relation to the capacity of that portion of the circulation system.

Other yardsticks for measuring/comparing intersections are accident rates or length of waiting time per driver. Accidents can be generally classified into two main groupings for traffic purposes; those that are related to driver error that may have some chance of being addressed through a physical modification of the intersection, and those caused by external factors such as drug/alcohol use.

It is anticipated that a significant upgrading of city streets in proximity to Highway 132 will be required in order to keep the state highway operating at a viable LOS in the future. This is possible if large numbers of short or local trips can be kept off the highway by offering efficient options.

***Regional Transportation System***

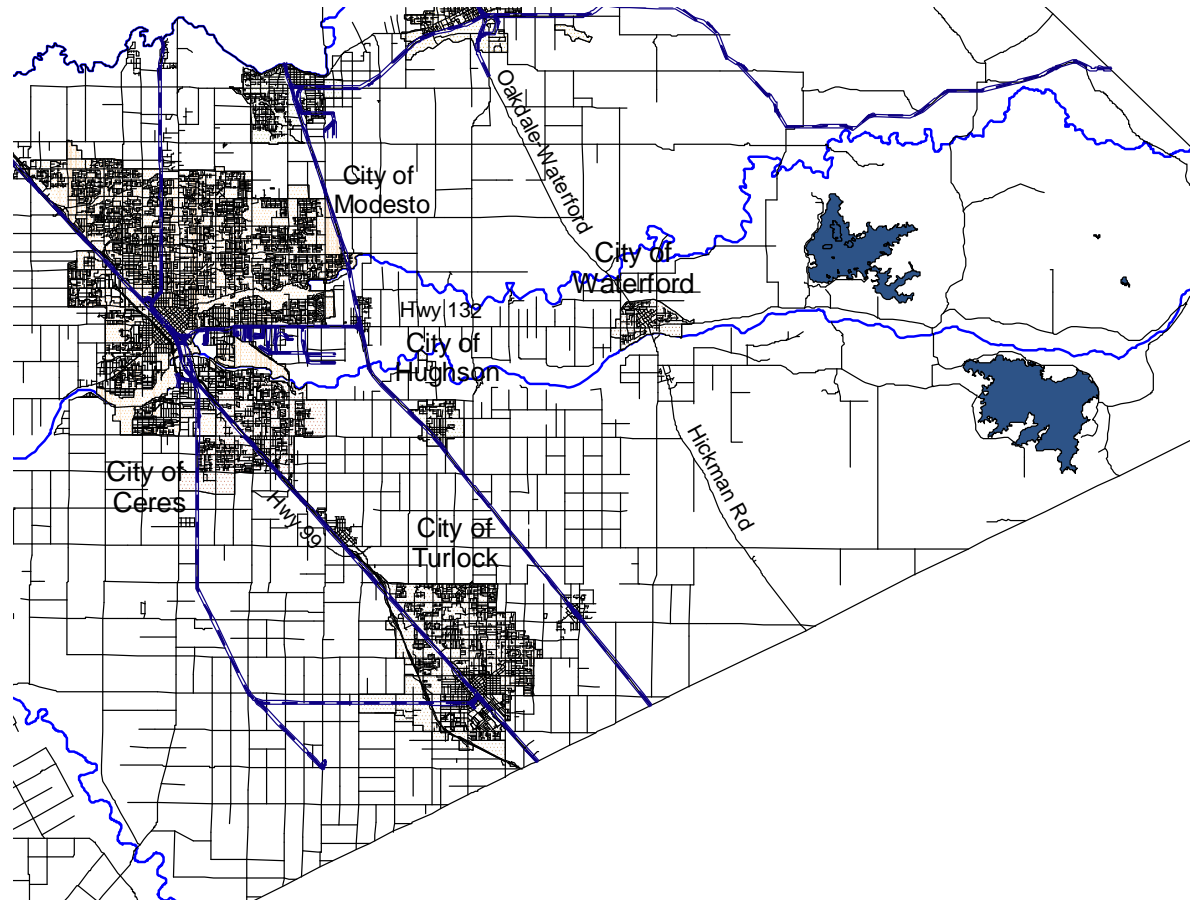
The Stanislaus County Regional Transportation Plan is adopted by the Stanislaus County Council of Governments (StanCOG). The policy board of StanCOG is composed of sixteen voting members (each with one vote), including five members of the Stanislaus County Board of Supervisors, three council representatives for the City of Modesto, and one council representative from each of the other cities in the county. A Caltrans District 10 representative serves in an "ex-officio" capacity on the policy board and actively participates in the discussions. Caltrans is provided time on each policy board agenda for a report on transportation issues that could affect StanCOG.

State law requires the Regional Transportation Plan (RTP) to be:

“directed at the achievement of a coordinated and balanced regional transportation system. The plan shall be action oriented and pragmatic considering both the short term and long term future and shall present clear, concise policy guidelines to local and state officials.”

The RTP is required to contain a Policy Element, Action Element, Financial Element, and reference environmental and air quality documentation. The completed RTP is to be adopted by the StanCOG governing board, then submitted to Caltrans and the California Transportation Commission. Federal regulations issued by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) also require the development and adoption of an RTP.

**Figure 3.16.2**  
*City of Waterford Regional Circulation*



**Table 3.16.3**  
**Waterford Regional Street System**  
**Traffic Volume Model Forecast 2030**

<i>Seg. No.</i>	<i>Name</i>	<i>Segment</i>	<i>county Design Standard</i>	<i>2030 ADT</i>
	<b><i>North South Segments</i></b>			
1	Oakdale-Waterford Hwy	Waterford N. to Milnes Rd.	Major 4-Lane	20,926
2	Oakdale-Waterford Hwy	Milnes Rd. N. to Claribel Rd.	Major 4-Lane	16,369
3	Oakdale-Waterford Hwy	Claribel Rd. N. to Albers Rd.	Major 4-Lane	5,469
4	Hickman Road	Waterford S. to Lake Rd.	Major 4-Lane	19,890
5	Hickman Road	Lake Rd. S. to Whitmore Ave.	Major 4-Lane	17,033
6	Hickman Road	Whitmore Ave. S. to Keyes Rd.	Collector	5,553
7	Albers Rd.	Yosemite Blvd (132) N. to Milnes Rd.	Expressway 6-Lane	15,967
8	Albers Rd.	Milnes Rd. N. to Claribel Rd.	Expressway 6-Lane	15,459
9	Geer Rd	Yosemite Blvd. (132) S. to Whitmore	Expressway 6-Lane	20,282
10	Downie	Whitmore Rd. S. to Service Rd.	Local	6,765
11	Downie	Service Rd. S. to Grayson Rd.	Local	3,960
12	Downie	Grayson Rd. S. to Keyes Rd.	Local	2,524
13	Gratton	Whitmore Rd. S. to Service Rd.	Collector	1,493
14	Gratton	Service Rd. S. to Grayson Rd.	Collector	4,045
15	Gratton	Grayson Rd. S. to Keyes Rd.	Collector	2,468
16	Berkeley	Whitmore Rd. S. to Service Rd	Local	1,785
17	Berkeley	Service Rd. S. to Grayson Rd.	Local	3,572
18	Berkeley	Grayson Rd. S. to Keyes Rd.	Local	3,782
19	Santa Fe	Geer Rd. S. to Berkeley Rd.	Expressway 4-Lane	16,637
20		.		
21	<b><i>East-West Segments</i></b>			
22	Claribel Rd.	Oakdale-Waterford Hwy. W. to Albers Rd.	Expressway 6-Lane	15,335
23	Claribel Rd.	Albers Rd. to W. Bentley Rd.	Expressway 6-Lane	24,069
24	Claribel Rd.	Bently W. to Langworth	Expressway 6-Lane	30,747
25	Milnes Rd.	Oakdale-Waterford Hwy. W. to Albers Rd.	Major 4-Lane	4,783
26	Yosemite Blvd. (132)	Waterford E. to Hazeldine Rd.	Expressway 4-Lane	10,747
27	Yosemite Blvd. (132)	Waterford W. to McEwen Rd.	Expressway 4-Lane	17,999
28	Yosemite Blvd (132)	McEwen Rd. W. to Albers Rd.	Expressway 4-Lane	19,766
16	Yosemite Blvd. (132)	Albers Rd. W. to community of Empire	Expressway 4-Lane	15,018
17	Whitmore Ave.	Hickman Rd. W. To Downie	Major 4-Lane	14,328
29	Whitmore Ave.	Downie Rd. W. to Gratton Rd.	Major 4-Lane	7,654
30	Whitmore Ave.	Gratton Rd. W. to Berkeley Rd.	Major 4-Lane	3,903
31	Whitmore Ave.	Berkeley Rd. W. to Geer Rd.	Major 4-Lane	4,207
32	Service Rd.	Downie Rd. W. to Gratton Rd.	Local	6,374
33	Service Rd.	Gratton Rd. W. to Berkeley Rd.	Local	2,819
34	Service Rd.	Berkeley Rd. W. to Geer. Rd.	Local	4,767
35	Grayson Rd.	Downie Rd. W. to Gratton Rd.	Local	942
36	Grayson Rd.	Gratton Rd. W. to Berkeley Rd.	Local	613

The RTP is a twenty-year plan that outlines the regional goals, transportation improvements, and funding sources. The RTP is the first step in the regional transportation planning process. The Regional Transportation Improvement Program (RTIP) is each region's four year program of state and federally funded transportation projects. The RTIP also nominates projects to the California Transportation Commission (CTC) for funding in the State Transportation Improvement Program (STIP). The RTIP must be consistent with the Regional Transportation Plan.

A federal version of the RTIP is the Federal Transportation Improvement Program (FTIP) which contains all federally funded surface transportation projects at the state and regional level. Projects in the RTIP that are programmed by the CTC into the STIP and local projects become the basis for the FTIP. The difference between the FTIP and the RTIP is that the FTIP is financially constrained, meaning it includes only approved and funded projects, whereas the RTIP nominates projects for funding.

Regional transportation agencies must insure that projects in the RTP and FTIP conform to all federal air quality standards. The conformity finding must be based on the most recently approved State Implementation Plan (SIP).

Stanislaus County has recently amended its general plan Circulation Element. Like the RTP, Stanislaus County's General Plan Circulation Element is a county-wide plan and it addresses interstate and state highways as well as local streets and roads. The circulation element defines the types of transportation facilities and policies that the county has determined are required within the unincorporated area of the county to achieve the goals and policies established for the county by the board of supervisors.

The recent Stanislaus County General Plan Amendment (No. 2004-03), also known as the Focused General Plan Update of the county's Circulation Element, was initiated in 2002 and adopted by the County Board of Supervisors in 2006. The purpose of the amendment was to incorporate key elements of the Stanislaus Council of Governments' Regional Transportation Plan adopted in 2002 and improve consistency of the county general plan with the transportation system designations and standards adopted by the nine cities in Stanislaus County in their respective general plans. This amendment was adopted by Stanislaus County.

The City of Waterford supports and participates in the development of the Stanislaus County RTP and its policies and programs. The city utilizes data developed by StanCOG to create its local and regional traffic model.

### ***Public Transportation***

Stanislaus Regional Transit (StaRT) provides fixed route and runabout/dial-a-ride service throughout the county. The service links all communities within the county and provides connection to public rail and bus services outside the county.

### ***Pedestrian and Bicycle Transportation***

Bicycling and walking continue to grow in popularity due to their health benefits and recreational value. The nature of the region, general climatic conditions, and recreation opportunities all support bicycling and walking as an important mode of transportation within the Waterford urban area. The City of Waterford adopted a Bicycle Master Plan in 2000 that is consistent with and linked to the Stanislaus County Bicycle Master Plan.

### ***3.16.2 Environmental Impacts***

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To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in automobile traffic will result in the need to expand, extend and improve transportation facilities and services.

#### ***A. Thresholds of Significance***

Urbanization of the vacant portions of the planning area and/or intensification of city commercial and industrial land uses is expected to generate an increase in volume of traffic on the local street and highway network. Successful revitalization of the community's downtown may generate new demand for parking in that portion of the city. Minor alterations to present patterns of shopping and work commute trips may result as the planning area urbanizes and as uses intensify through development activities.

Appendix "G" of the CEQA Guidelines addresses potential impacts on Transportation and Traffic as follows:

#### ***Would the project:***

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio of roads, or congestion at intersections)?
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- Substantial increase in hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?
- Result in inadequate parking capacity?
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

### ***ASSESSMENT OF PUBLIC ROADS AND HIGHWAYS LEVEL OF SERVICE***

**DEFINITION OF LEVEL OF SERVICE (LOS):** A qualitative measure describing the collective traffic flow condition on a roadway, including such factors as speed, delay, driving comfort, and freedom to change lanes.

**THRESHOLD CRITERIA:**

**Impact Criteria:**

A project that would result in 10% or more of the total traffic and one or more vehicle trips during the peak hour on a road segment or intersection, will be considered to have an impact on that road segment or intersection's traffic flow.

**Significance Criteria:**

- 1) A project that would have an impact on a road segment or intersection that is currently operating at a less than acceptable Level of Service (LOS "E" or "F") will be considered to have a significant impact.
- 2) A project that would have an impact on a road segment or intersection that is currently operating at an acceptable LOS, where the cumulative traffic impacts would result in the LOS falling to an unacceptable level (LOS "E" or "F") will be considered to have a significant impact.

***ASSESSMENT OF AIR TRAFFIC PATTERNS***

**DEFINITION OF ISSUE**

The generation of substantial new air traffic or the re-routing of air traffic that can result in the creation of hazards to the public.

**THRESHOLD CRITERIA**

Any project that does not conform to an adopted airport land use plan, as required under Public Utility Code Section 21670 and 21670.1 is likely to result in the creation of a significant adverse impact to air traffic patterns.

***ASSESSMENT OF PUBLIC HIGHWAY SAFETY AND DESIGN***

**DEFINITION OF SAFETY/DESIGN**

A safe design is one that meets current approved community road standards unless a deviation is approved by the director of public works, as applicable.

**THRESHOLD CRITERIA**

Most development projects affect the public road system through access encroachments, improving or widening existing roads, and/or constructing new road sections. Projects that comply with the city road improvement standards or Caltrans design standards as applicable generally have a less than significant impact on the safety and design of the public road system. Project impacts on intersections, that exceed state accident warrants for signalization, will be considered significant.

***ASSESSMENT OF EMERGENCY OR TACTICAL ACCESS***

**DEFINITION OF ISSUE**

Emergency or tactical access is an organized system of roads/access to and from a project utilized in the event of any emergency or disaster. An access road may be impaired by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit emergency access. Standards utilized in the evaluation of emergency or tactical access are included in the State Fire Safe Guidelines and local emergency access



standards.

#### **THRESHOLD CRITERIA**

Projects that do comply with local standards or the Fire Safe Guidelines, whichever is applicable, for tactical access are likely to result in a significant adverse impact with respect to access and emergency service.

#### ***ASSESSMENT OF OFF-STREET PARKING***

##### **DEFINITION OF ISSUE**

Off-street parking means a facility, area, or the need for vehicle parking located outside of a public street right-of-way.

##### **THRESHOLD CRITERIA**

Any project which generates additional vehicle trips during the construction or operation phases would have an impact on off-street parking. For the construction phase, if there is sufficient space on-site to park construction vehicles, then the project would have a less than significant impact. Conversely, if there would not be sufficient space on-site to accommodate construction vehicles, then the significance must be determined on a case-by-case basis.

For the operation phase, if the project includes parking that meets the zoning requirements, then the project would have a less-than-significant impact. Conversely, if the project does not meet the zoning parking requirements, then significance must be determined on a case-by-case basis.

#### ***ASSESSMENT OF BUS TRANSIT***

##### **DEFINITION OF ISSUE**

Bus transit means a system of, or the need for, public bus transportation.

##### **THRESHOLD CRITERIA**

Bus transit is an important component of the regional transportation system. A project will normally have a significant impact on bus transit if it would substantially interfere with existing bus transit facilities or routes, or if it would create a substantial demand for bus transit facilities/services.

##### **METHODOLOGY**

Any project which generates additional alternative transportation trips (public transit, pedestrian, bicycle, etc.) during the construction or operation phases would have an impact on alternative transportation services. For the construction phase, if there is sufficient alternative transportation service capacity for construction workers, then the project would have a less than significant impact. Conversely, if there would not be sufficient capacity to accommodate construction workers, then the significance must be determined on a case-by-case basis.

For the operation phase, if the project includes alternative transportation facilities or the expansion of alternative transportation services that meets the projected needs, then the

project would have a less than significant impact. Conversely, if the project does not meet the alternative transportation requirements or standards established by transportation service providers or other adopted alternative transportation plans or policies, then significance must be determined on a case-by-case basis.

***B. Potential Significant Impacts:***

*Transportation and Traffic Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential transportation and traffic impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?*

Existing and future traffic conditions do not exceed the level of service (LOS) standard established by the congestion management agency for Stanislaus County.

- *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

There are no airport facilities within one-mile of the city of Waterford.

- *Substantial increase in hazards due to a design feature) e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

The general plan Circulation Chapter does not contain any design features nor does it create any incompatible uses of streets and roadways that would result in an increase in traffic hazards. Statistically, as local traffic volumes increase, so will the incidence of vehicle-related accidents. Planning standards established in the Circulation Chapter of the general plan, however, should reduce the rate of such accidents in proportion to total traffic volumes.

- *Result in inadequate emergency access?*

The general plan Circulation and Safety chapters contain policies and standards for the development of emergency access that minimize the potential for new growth and development to create emergency access problems.

- *Result in inadequate parking capacity?*

Parking standards are established by zoning regulation adopted to, and consistent with, the general plan. These standards assure that parking is provided, or considered as part of the development review and entitlement process.

- *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*

The general plan Circulation Element is the primary policy document for establishing criteria for alternative transportation development.

*Transportation and Traffic Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, the following aspects of a potential transportation and traffic impact may result in a significant adverse environmental impact due to project implementation:

- *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio of roads, or congestion at intersections)?*

The general plan traffic model for the year 2030 indicates that with proposed improvements in both local (city) and regional circulation systems, the substantial increase in traffic resulting from local and regional growth will not result in congestion or operate at unacceptable levels of service. Construction of these local and regional improvements, however, is dependent on the availability of funding. Funding sources will need to include development impact fees along with voter approved sales taxes and maximization of other funding sources (state and federal).

***C. Proposed General Plan Goals & Policies:***

The Circulation Chapter of the Waterford General Plan contains the following goals and policies that apply to the future transportation and traffic needs of the city:

***Goal Area- Urban Expansion (UE)***

Efficient Urban Expansion

***Policies***

**UE -5.** Extend Sphere of Influence boundaries relative to all major streets and highways in the Waterford planning area.

***Goal Area- Land Use (LU)***

Pedestrian-Friendly Residential Environments

Ready Access to Commercial Services Throughout the city

***Policies***

**L-1.7** Encourage the location of multi-family developments on sites with good access to transportation, shopping, and services.

**L-2.7** Locate and design new commercial development to provide good access from adjacent neighborhoods and reduce congestion on major streets.

**Goal Area- Transportation (T)**

An Integrated Road System that is Safe and Efficient  
A Circulation System that is Convenient and Flexible  
A Circulation System that Minimizes Adverse Impacts upon the Community  
An Efficient and Comprehensive Public Transit System  
A Comprehensive System of Safe and Convenient Bicycle Routes (Within the Community and Throughout the Urban Area)  
A Comprehensive System of Safe and Convenient Pedestrian-ways  
Living Environments which Encourage People to Use a Variety of Transportation Alternatives  
A Compact Urban Design for New Growth Areas  
Self-sustaining, Mixed-Use, Pedestrian-Friendly Urban Centers

**Policies**

- T-1.1** Design streets consistent with circulation function and affected land uses.
- T-1.2** Coordinate circulation and transportation planning with pertinent regional, state and federal agencies.
- T-1.3** Design major roads to maximize efficiency.
- T-1.4** Promote traffic safety.
- T-1.5** Minimize unnecessary travel demand on major streets.
- T-1.6** Minimize adverse impacts on the environment from existing and proposed road systems.
- T-1.7** Minimize street system impacts on residential neighborhoods and other sensitive land uses.
- T-2.1** Support and enhance the use of public transit.
- T-2.2** Support a safe and effective public transit system.
- T-2.3** Encourage the use of bicycles as alternative transportation.
- T-2.4** Provide convenient bicycle support facilities to encourage bicycle use.
- T-2.5** Maintain and expand the community's existing bicycle circulation system.
- T-2.6** Maintain a pedestrian-friendly environment.
- T-2.7** Improve planning for pedestrians.
- T-2.8** Ensure that new development provides the facilities and programs that improve the effectiveness of transportation control measures and congestion management programs.
- T-3.1** Create land use patterns that will encourage people to walk, bicycle, or use public transit for an increased number of their daily trips.
- T-3.2** Encourage infill development and a compact urban form.
- T-3.3** Promote site designs that encourage walking, cycling, and transit use.
- T-3.4** Locate and design new commercial developments to provide good access from adjacent neighborhoods and reduce congestion on major streets.

**Goal Area- Sustainable Development (SD)**

Effective and Efficient Transportation Infrastructure

**Policies**

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

***D. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on transportation and traffic in the city. The plan, however, will establish policy standards by which new growth and development will be evaluated with respect to impacts on the city's circulation and transportation system.

***E. Long-Term Impacts:***

Long term impact of growth and development are expected to result in a balance between increased need for transportation service and facility development and increased traffic. Increased growth in the city and the region will result in the need to build new roadways and improve existing roadways and intersections. In the long-term (2030) there will be a need to add two additional lanes to the Tuolumne River Bridge on the Hickman Road section of "F" Street.

***F. Cumulative Impacts:***

Development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic impacts region-wide. At present, resources are not available to resolve these impacts.

***G. Secondary Impacts:***

Development of new roadways and transportation facilities may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for roadways and transportation facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

***3.16.3 Mitigation Measures***

As part of the city's development review program, individual development projects are typically required to prepare traffic studies to evaluate the project's impact on traffic. Larger projects typically prepare more extensive studies that may evaluate regional traffic issues. As a result of these studies, specific project level mitigation measures may be required as part of the project's conditions of approval.

Mitigation to the cumulative impact of increased traffic congestion within the Waterford planning area is beyond the ability and jurisdiction of the city. The city will participate in development impact fee programs for both local (city) improvements and a regional fee program.

***3.16.4 Level of Significance After Mitigation***

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Until a plan is developed, and fully funded, to address the regional traffic problems, it can be expected that the growth in traffic resulting from the implementation of the Waterford General Plan will contribute to a significant cumulative regional circulation problem.

As a result of the analysis of potential project impacts on transportation and traffic, it can be concluded that the project will contribute to the cumulative increase in traffic and congestion as an overall consequence of regional growth and this is considered a “significant” adverse impact under CEQA.

## ***Section 3.17***

### ***Utilities and Service Systems***

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This environmental issue focuses on the impacts of a project on public utility systems or facilities such as water, wastewater, storm water drainage or other utility or service systems. It addresses the impacts of the construction of such systems, as well as impacts on the capacities of such systems.

As part of the Waterford Vision 2025 General Plan Update, the city commissioned the preparation of master plans for wastewater treatment, sewer, water and storm drainage to serve the future urban expansion area of the city. The implementation of these master plans will be an integral part of the implementation of the city's general plan and therefore are included in this analysis in detail. These utility master plans are incorporated by reference and available for review at the City of Waterford. It should be noted that these plans are dynamic in nature and subject to amendment and update from time to time, subject to CEQA.

As part of this master planning process, development of these utility systems required the careful evaluation of alternative designs and the use of alternative technologies. These alternative discussions are contained in these master plan documents and are briefly discussed in this environmental impact report.

#### ***3.17.1 Environmental Setting***

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##### ***A. Water Utilities:***

The Del Este water system, owned and operated by the City of Modesto, serves most of the area within the existing city limits. This water system serves approximately 7,500 residents, and encompasses a service area of approximately 950 acres. The system includes five operational wells and approximately 120,000 linear feet of pipeline.

The water supply was originally constructed and maintained by the Del Este Water Company. Del Este was purchased by the City of Modesto in 1995. As a result of the purchase and the merger of the Waterford Irrigation District into the Modesto Irrigation District (MID) in 1978, the MID has extensive water rights under the state's Water Commission Act of 1914. The City of Modesto is the water supplier to the communities of Waterford, Hickman, Del Rio, Salida, Grayson, and parts of Ceres and Turlock.

Modesto Water's customer base within current City of Waterford boundaries is and will continue to be served by the City of Modesto. This has been the case since the mid 1990s when the City of Modesto took over service from the Del Este Water Company. The city has no plans at this time to serve any of Modesto's customers. Waterford's primary objective is to supply the Primary Sphere surrounding the current city boundaries and the River Pointe development. The City may, in the future, supply water to new customers inside the existing City limits as might be necessary.

As of its formation in 2005, the City of Waterford Water Department is responsible for supplying all urban water demands within its service area. As of 2005, the department's

service area is the 1,610-acre Primary Sphere annexation area surrounding the current city boundaries. As noted, the city will also supply water to River Pointe, a 75-acre section within the city limits where new residential development has occurred. Currently, the area consists of primarily agricultural land that is being converted into residential areas.

The existing water demands in the Primary Sphere, which includes agricultural and limited residential demands are met with raw surface water from MID and private groundwater wells. The city is not responsible for supplying these current demands. As agricultural areas are transitioned to residential areas during development of the area, the city will take over service.

Currently, drinking water for the city of Waterford is supplied solely by groundwater wells. In accordance with City plans and discussions with MID, treated surface water from MID the soonest that treated surface water can become available is 2018. When the Phase III expansion of MID's existing surface water treatment plant (WTP) is completed in 2018, the city plans to begin purchasing treated surface water to supply a majority of the study area. When this occurs total groundwater production will decrease rapidly, and will thereafter meet only a percentage of study area demands. After the transition to surface water, groundwater will be used to meet seasonal demands that exceed the city's entitlement to the WTP's capacity.

The city anticipates participating in the Phase III expansion of MID's existing surface WTP.

However, because MID's service area boundary is not contiguous with the study area boundary, MID will not supply water to all of the city's study area under present policies. For the 12 percent of the study area that falls outside MID service area boundaries, an annual volume of groundwater will be blended with surface water supplies such that the annual ratio of groundwater to MID water for the study area is equal to or greater than 12 percent; the intent, however, will be to maximize the allowable percentage of treated surface water used to supply the study area. Such a conjunctive supply strategy will 1) ensure that the MID service area boundaries are upheld, and 2) provide the same high quality drinking water to the entire city.

One of largest new residential development projects, called River Pointe, has developed its own water system. This project is completely independent of the City of Modesto and the MID system, at present. However future plans anticipate the merging of these systems within the city of Waterford.

At complete annexation build-out, the residential, commercial and industrial demand for water is projected to be approximately 3,300 acre-feet-per-year (afy). An afy is approximately 325,851 gallons of water. It is expected that the city and developers will supply the new development with new private groundwater wells. In addition, the city will need to examine the construction of water tanks and/or reservoirs for storage.



Currently, surface water supplied by MID's Modesto Regional Water Treatment Plant is supplementing existing groundwater supplies to the City of Modesto. Waterford's system is solely supplied by groundwater. Waterford has no connections to the MID system. There is the potential for the city to connect to this system in the future. However, the City of Modesto has no current plans to connect Waterford to the system.

***Future Water Demand***

The 2005 *Urban Water Management Plan*, developed for the city by RMC, provided water demand estimates for the city's Primary Sphere and River Pointe development. This is considered to be the city's "Service Area" since the City of Modesto will continue to provide water to existing users inside the city's current boundaries. Within this service area, existing land use is primarily agricultural with a few associated residences. Current demand in this new area is supplied by MID and private groundwater wells. It is assumed that MID will continue to serve the agricultural demands within its service area until the land is converted for residential development and municipal service standards are met.

The UWMP shows population projections for the service area, which were developed by extrapolating linearly from current population to build-out at 2030.

**Table 3.17.1  
Estimated Build-out (2030) Land Use Categories and Acreage for the Service Area**

<b>Land Use Category</b>	<b>Gross Acreage</b>	<b>Dwelling Units <sup>(1)</sup></b>	<b>Population <sup>(1)</sup></b>
Low Density Residential	1,392	6,264	18,792
Industrial	126	0	n/a
General Commercial	48	0	n/a
Major roads, canals, railroads	129	0	n/a
<b>TOTAL</b>	<b>1,695<sup>(2)</sup></b>	<b>6,264</b>	<b>18,792</b>

1. Population estimate assumes 3.5 persons/DU, 4.5 dwelling units (DU) per acre (gross acreage), and a net acreage value of 85% (effectively 3.85 DU/acre).
2. Includes Primary Sphere (1610 acres) and River Pointe Development (75 acres).

Residential water demand was projected based on estimated development dwelling unit projections for the city's service area through the year 2030. For the purposes of these projections, the "service area" includes area not currently served by the city. The estimated number of residences and population in the service area is shown in the table below.

**Table 3.17.2**  
**Current and Projected Population for the Service Area<sup>1</sup>**

	2005	2010	2015	2020	2025	2030
Service Area Population	204	3922	7639	11357	15074	18792
Estimated Residences in the Service Area	68	1307	2546	3786	5025	6264

<sup>1</sup> Population projections include the existing population not currently served water by the city.

Residential water demand was projected based on estimated development dwelling unit projections shown in the table above. Dwelling unit estimates were multiplied by the assumed water consumption of 0.5 afy per unit. The table shows the current and projected residential water demand for the service area in five-year increments.

**Table 3.17.3**  
**Residential Water Demand – Current and Projected**

	2000 <sup>1</sup>	2005 <sup>2</sup>	2010	2015	2020	2025	2030
Water Demand Total (AFY)	355	355	654	1273	1893	2512	3132
Water Demand within MID Service Area (AFY)	350	350	562	1095	1628	2161	2694
Water Demand outside of MID Service Area (AFY)	5	5	92	178	265	352	438

<sup>1</sup> 2000 water demands were met by MID surface water and private wells.

<sup>2</sup> Water park demands are included in the 2000-2005, but are zero in subsequent years.

Industrial and commercial demands were estimated for build-out conditions. Water use factors for industrial and commercial demands were based on estimates used for similar development areas. For industrial demands, a water use of 2.65 afy/acre (2,366 gallons per day ([gpd]/acre) was used. For commercial demands, a water use factor of 2.91 afy/acre (2,600 gpd/acre) was used. Calculated water demand for industrial and commercial values is shown in the table below.

**Table 3.17.4**  
**Industrial/Commercial Water Demand – Current and Projected**

	2000	2005	2010	2015	2020	2025	2030
Industrial (AFY)	0	0	67	134	200	267	334
Commercial (AFY)	0	0	28	56	84	112	140
Total (AFY)	0	0	95	190	284	379	474

### ***Water Supply***

The city will supply new development within the service area with groundwater until 2018 when the anticipated expansion of the Modesto Reservoir water treatment plant (MRWTP) is complete. At this time the city will supply the area within the MID service area (approximately 86% of the service area) with treated surface water from the MRWTP. The areas outside of the MID service area will be supplied by the city with

groundwater. At build-out, according to the UWMP, the city's projected available surface water and groundwater supplies will be approximately 3,122 afy and 3,286 afy, respectively. The total available supply at build-out is estimated to be 6,408 afy within the service area.

### ***Water System Expansion Projects***

The following is a summary of the future well expansion projects, future MID treated water expansion projects, and future water distribution system expansion projects, as well as the costs, phasing, and other issues associated with implementation of the recommended projects as contained in the *City of Waterford Water System Master Plan* (March 2006).

### ***Future Well Expansion Projects***

Figure 3.17.2 presents the locations of the existing and proposed groundwater wells for the future water system, and identifies individual well siting and expansion projects (Projects 2 and 3). For the purposes of the Master Plan, it was assumed that the centralized groundwater treatment facility will consist of three duty wells and one standby well, each with a production capacity of approximately 1,200 gallons per minute (gpm), or 1.73 million gallons per day (mgd). The spacing between wells should ensure that the operation of any well will not significantly impact the production capacity of another; for the Master Plan, it was assumed that all wells will be separated by a distance of at least 0.33 miles.

The decision to recommend pressure filters for the new wells was based upon the existing groundwater treatment facilities in River Pointe. Prior to the completion of a hydro-geological and well siting study, it will be difficult to determine if treatment is necessary or the type and number of groundwater treatment modules.

### ***Future MID Treated Surface Water Expansion Projects***

Figure 3.17.2 provides callouts for two recommended surface water expansion and delivery projects. Project No. 1 features the installation of pressure gauges at two locations along MID's existing treated water pipeline. Project No. 4 features a 4.0 mgd expansion of MID's existing surface water treatment plant (WTP) east of the existing city, as well as a turnout and booster pump station along the treated water pipeline. The 'raw' treated water pipeline will convey treated surface water to a centralized groundwater treatment facility where surface water and groundwater will be mixed and stored before entering the distribution system. Figure 3.17.1 provides a schematic of the proposed centralized treatment facility.

### ***Future Water Distribution System Expansion Projects***

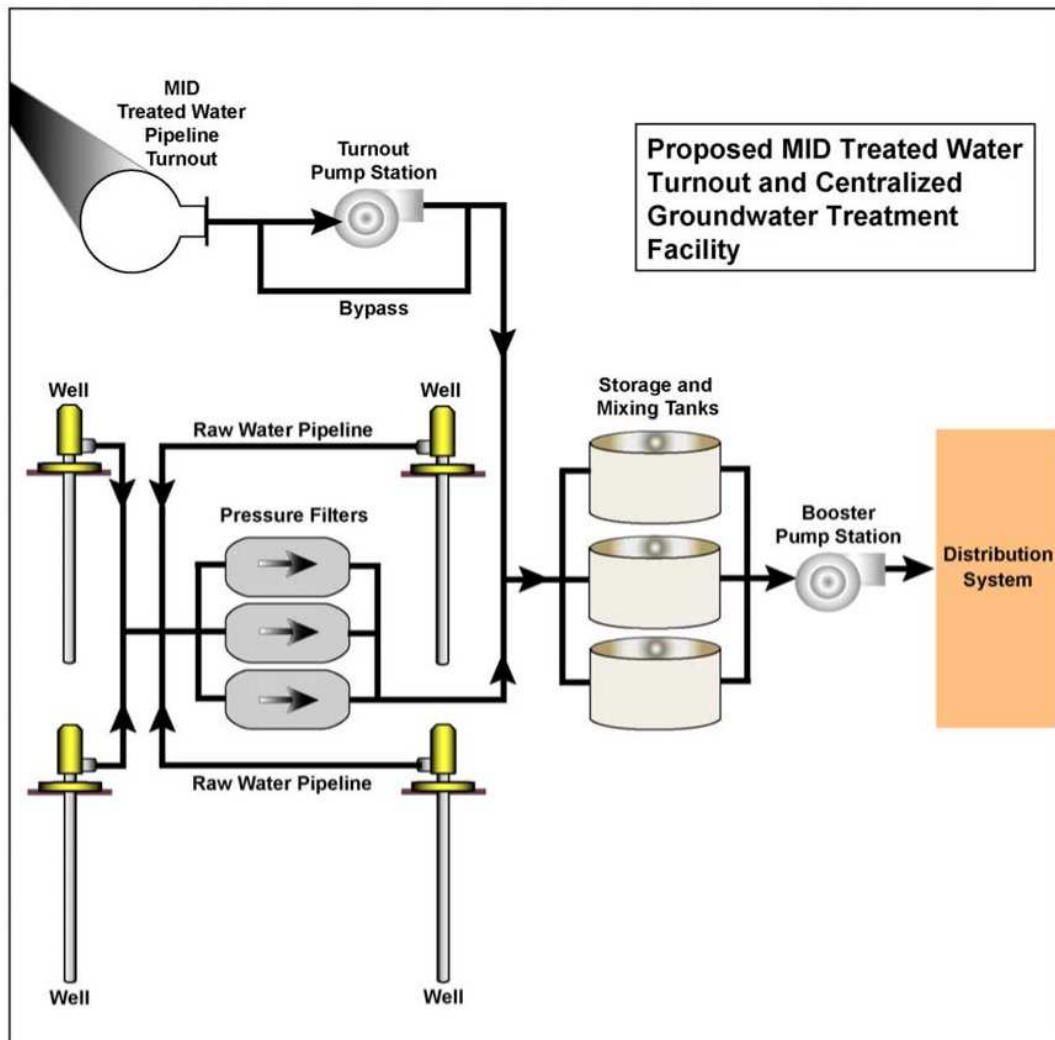
Figure 3.17.2 presents the locations of 14 individual expansion projects, including nine proposed water distribution system expansion projects.

### ***Project Descriptions and Costs***

A total of 14 projects have been developed and recommended for the future water distribution system in the study area. Figure 3.17.3 provides the diameters of all pipes

in the recommended distribution system. Descriptions, costs, and phasing of the recommended projects, as well as any associated implementation issues, are presented in the subsequent sections. The proposed projects include one pressure monitoring project, three well and water treatment/storage projects, one WTP expansion project, and nine water main projects. Individual project descriptions, including pipe diameters, pipe lengths, storage tank requirements, pump station parameters, and estimated costs, are presented in Table 3.17.5.

**Figure 3.17.1**  
**Proposed Centralized Water Supply and Treatment Facility**







### ***Proposed Phasing***

Project No. 1 should be constructed first in order to collect data that will be necessary to design the MID turnout facility (Project No. 4). The data collected will determine if a pump station will be necessary to pump treated water from the MID treated water pipeline up into the storage tank. Initial calculations show that the available pressure may or may not be sufficient. Consideration should be given to constructing a portion of the turnout facility at the same time as the construction of Project No. 1. The proposed MID turnout and centralized groundwater treatment facility (Project Nos. 3 and 4) will need to be constructed as development demands exceed the capacity of the current groundwater facilities. Project Nos. 5 and 6 are main transmission projects which move water east and west and together will form the ‘backbone’ of the distribution system.

As such, they should be constructed early to allow the existing groundwater supply facilities to work in conjunction with the groundwater facilities that will come on-line first. Project No. 4 (WTP Expansion and MID turnout) is a key project for Waterford. Early discussions with MID will be necessary to keep this project on schedule. Distribution projects should be constructed as development occurs. Additionally, it is recommended that the hydraulic model developed for this master plan is run as new developments come on-line.

### ***Implementation Issues***

A variety of issues may affect the implementation of the future water distribution system improvement projects presented in this master plan. These issues may include changes in road alignments, permitting issues for canal crossings or surface and groundwater treatment facilities, refinement of study area land uses (including school and park parcels), and future developer plans, among others. The proposed water distribution system layout in this master plan is intended to offer a conceptual solution to the city’s future needs; more rigorous analyses will be required, including the analysis of existing and future road alignments, geotechnical analyses of proposed pipeline alignments, and environmental permitting analyses, before design and construction phases can begin.

### ***Additional Recommendations***

The following sections provide recommendations for projects that will improve maintenance of the city’s water system. These projects and programs should be implemented to enhance the existing and future water system and provide the city with an improved understanding of customer water use.

### ***Recycled Water Master Plan***

The city’s *Wastewater Treatment Plant Assessment Report (RMC, 2006)* presents recommendations for two possible long-term improvement options for the city’s wastewater treatment facilities. Based on the outcome of those recommendations, the city may soon be in possession of a reliable supply of recycled water. Recycled water is defined in the California Water Code as “water which, as a result of treatment of waste [water], is suitable for a direct beneficial use or a controlled use that would not otherwise occur.” Recycled water can be safely used for many applications that do not require drinking water quality, including landscape irrigation (e.g., golf courses, parks, roadway medians, and cemeteries), cooling towers and other industrial uses, toilet flushing, environmental enhancement, and decorative fountains.



It is recommended that the city prepare a Recycled Water Master Plan (RWMP). The purpose of the RWMP will be to identify where and how the city could most feasibly develop recycled water in the city, and provide a strategy for implementing the recycled water projects identified. Implementing recycled water projects will:

- Promote efficient use of potable water resources by supplying non-potable recycled water for uses such as park and golf course irrigation, commercial and industrial uses, and environmental enhancements;
- Provide a new “drought-resistant” and locally produced water source that will reduce potential water use restrictions and preserve landscape value during extended dry weather periods;
- Uphold state goals and regulations encouraging the use of recycled water; and,
- Reduce treated wastewater discharges into the city’s percolation ponds.

Planning and implementing significant recycled water projects in the city could take several years. In preparation for drought periods, however, and in meeting long-term water supply reliability goals, it is prudent for the city to begin planning and implementing recycled water projects in the near future.

#### ***Dual Plumbing for All New Parks***

As a corollary to the recommendation for a RWMP, it is recommended that the city require all new parks in the study area be plumbed to receive recycled water in the future. Drinking fountains, restrooms, and hose bibbs will be permanently connected to the potable water system, while sprinklers and other irrigation equipment can be connected to a dedicated recycled water distribution system. Configuration of sprinklers and other recycled water devices should comply with all California (Title 22) regulations for reuse of non-potable water (i.e., drinking fountains and hose bibbs should not be within the spray zone of sprinklers, recycled water application shall not occur within 50 feet of any domestic well, etc.).

Until such time as a RWMP is developed for the city, both potable and recycled water facilities in all new parks will be connected to the city’s potable water system. An interim measure may include use of MID irrigation water in the system. Once a recycled water supply becomes available, appropriate non-potable facilities can be connected to the dedicated recycled water piping system (purple pipe system).

#### ***Urban Water Management Plan***

Per the State *Urban Water Management Planning Act*, urban water suppliers that supply more than 3,000 AFY must adopt an Urban Water Management Plan (UWMP). Compliance with the Urban Water Management Planning Act provides:

- Framework for regional cooperation and decision making;
- Balanced integration of supply and demand management;
- Sound basis for water supply assessments (SB 221 and 610 compliance);
- A foundation for securing additional supplies; and,
- Eligibility for state grant or loan funding



The City of Waterford  
Vision 2025 General Plan Update Program EIR

The City of Waterford prepared its first UWMP in 2005.

**Table 3.17.5**  
**Recommended Waterford Water System Projects and Estimated Costs**

Project No.	Description	Diameter (in)	Length (ft)	Pump Station Firm Capacity * /Well Production Capacity/Storage Tank Capacity	Baseline Construction Cost *	Estimated Capital Cost *
1	Pressure Gauges on MID Treated Water Pipeline					
	Pressure Gauges at Two Locations along MID Pipeline	---	---	---	\$50,000	\$72,000
	Subtotal				\$50,000	
2	Well Siting/Hydrogeological Investigation					
	Hydrogeological Investigation	---	---	---	\$85,000	\$144,000
	Well Siting Report	---	---	---	\$35,000	
	Subtotal				\$100,000	
3	Centralized GW Treatment Facility					
	Duty Well Construction	---	---	1,200 gpm	\$1,500,000	\$23,796,000
	Duty Well Construction	---	---	1,200 gpm	\$1,500,000	
	Duty Well Construction	---	---	1,200 gpm	\$1,500,000	
	Standby Well Construction	---	---	1,200 gpm	\$1,500,000	
	Raw Water Pipelines to Treatment Facility *	10	7,000	---	\$525,000	
	Centralized GW Treatment Plant	---	---	3,600 gpm	\$4,000,000	
	Storage/Mixing Tank	---	---	2.0 MG	\$1,600,000	
	Storage/Mixing Tank	---	---	2.0 MG	\$1,600,000	
	Storage/Mixing Tank	---	---	1.0 MG	\$800,000	
	Booster Pump Station	---	---	8,110 gpm	\$2,000,000	
	Subtotal				\$16,525,000	
4	Water Treatment Plant Expansion & MID Turnout and Pump Station					
	MID Surface WTP Expansion	---	---	4.00 mgd	\$8,000,000	\$13,313,000
	Turnout & Pump Station at Tim Bell Road	---	---	5.00 mgd	\$1,200,000	
	Treated Water Pipeline to Storage/Mixing Tank *	12	500	---	\$45,000	
	Subtotal				\$9,245,000	
5	Eastern Transmission Main					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	12	3,450	---	\$281,300	\$798,000
		18	2,660	---	\$292,600	
	Subtotal				\$553,900	
6	Western Transmission Main					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	12	470	---	\$42,300	\$974,000
		18	2,300	---	\$224,400	
		18	4,100	---	\$410,000	
	Subtotal				\$676,700	
7	Southwest Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	14,670	---	\$718,800	\$1,035,000
		12	1,680	---	\$151,200	
	Subtotal				\$718,800	

(continued on next page)

**Table 3.17.5 Continued**  
**Recommended Waterford Water System Projects and Estimated Costs**

Project No.	Description	Diameter (in)	Length (ft)	Pump Station Firm Capacity <sup>a</sup> /Well Production Capacity/Storage Tank Capacity	Baseline Construction Cost <sup>b</sup>	Estimated Capital Cost <sup>c</sup>
8	Western Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	5,060	---	\$298,400	\$1,038,000
		12	2,090	---	\$155,000	
		18	3,330	---	\$326,300	
	Subtotal				\$779,700	
9	Northwestern Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	15,550	---	\$743,400	\$2,068,000
		12	8,090	---	\$692,700	
					Subtotal	
					\$1,436,100	
10	Northern Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	16,870	---	\$700,000	\$2,081,000
		12	6,700	---	\$603,000	
		18	1,290	---	\$141,000	
	Subtotal				\$1,444,000	
11	Near East Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	2,090	---	\$81,200	\$1,136,000
		12	9,280	---	\$707,600	
					Subtotal	
					\$788,800	
12	Far East Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	11,000	---	\$440,000	\$1,528,000
		12	8,870	---	\$620,000	
					Subtotal	
					\$1,060,000	
13	Storage Tank & Booster Pump Station					
	Storage Tank	---	---	2.0 MG	\$1,600,000	\$3,468,000
	Booster Pump Station	---	---	2,630 gpm	\$800,000	
					Subtotal	
					\$2,400,000	
14	Southwest Mains					
	Refer to Figures 5-3 and 5-4 for locations and diameters of water mains	8	17,590	---	\$788,200	\$1,229,000
		12	960	---	\$67,200	
					Subtotal	
					\$855,400	
15	Master Plan Implementation and Management <sup>f</sup>					\$2,633,000
TOTAL						\$55,299,000

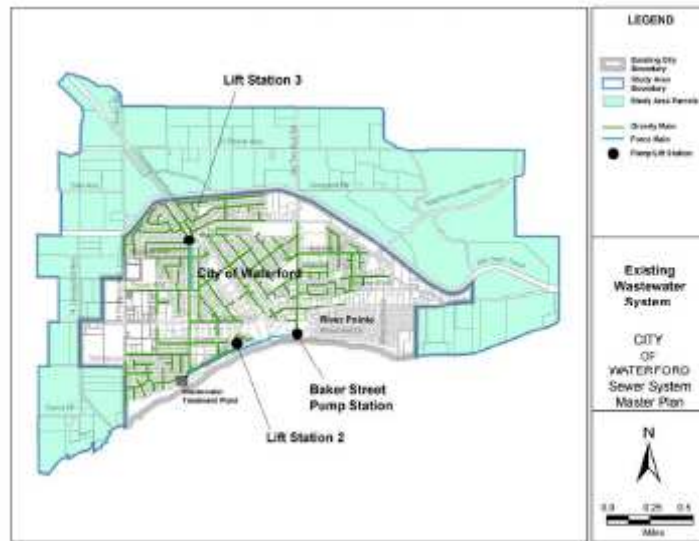
- a. Firm capacity is the pump station capacity with the largest pump not operating.
- b. Baseline Construction Costs were calculated based on the unit costs presented in Table 5-1.
- c. Estimated Capital Cost = (Baseline Construction Cost) x (1.44). Refer to Section 5.4.1.
- d. One 0.33-mile raw water pipeline was assumed for each GW well.
- e. One 500-foot treated water pipeline was assumed for the MID Turnout.
- f. See description below.

The length for these projects totals approximately one mile of raw water (RW) pipeline, and approximately 26.4 miles of water mains. Project 15, or Master Plan Implementation and Management, is assumed to be 5% of the total estimated capital cost for Projects 1 through 14. A small portion of the cost includes additional engineering analyses for certain recommended projects. The total estimated capital cost for all projects, including Project 15, is approximately \$55.3 million.

***B. Sewer and Wastewater Treatment Utilities***

The city's wastewater treatment system currently operates and maintains a wastewater collection, treatment and disposal system with a capacity of one mgd. The current average flow is approximately 0.585 mgd generated by the current population, or 75 gallons per person per day. Build-out of the current city limits will result in an estimated flow of 0.780 mgd at a population of approximately 10,400.

**Figure 3.17.4**  
**City of Waterford Existing Sewer System**



The system meets existing requirements of the Central Valley Regional Water Quality Control Board. However, the system does not meet secondary treatment standards, nor will it meet future discharge standards if not upgraded. The existing system is a “one-pass” biological treatment system, which reduces the strength of the sewage by using aerated ponds followed by percolation basins.

**Figure 3.17.5**  
**City of Waterford Existing Wastewater Treatment System Ponds**



The city's general plan plans for the annexation and development of 1,610 acres. Build-out population with this added development will be roughly 19,000 producing a flow of approximately 1.6 mgd average dry weather flow for the study area alone. Projected industrial and commercial development in the annexation area will create an additional 0.37 mgd for a total flow of 1.97 mgd average dry weather flow. Peak dry-weather flow is projected to be 6.81 mgd in the annexation area. When the capacity of 1.0 millions per day treatment threshold is reached, and due to the fact that the current site is space limited for both a treatment plant expansion and land for percolation, a new WWTP site will need to be selected.

With treatment modifications the existing site is expected to accommodate the city for 10 or more years. Beyond this period, the city will need to consider a new wastewater treatment plant or the possibility of joining a regional treatment system such as the City of Modesto's. This option would require a new pipeline that would have to be constructed to a regional connection point, possibly up to 20 miles, to connect to a regional system.

The city has recently completed a *Wastewater Treatment Master Plan*. The plan states that the current system meets existing standards, but will not meet new anticipated standards set by the Regional Water Quality Control Board. With some minor improvements and modifications, the existing system will allow for growth anticipated within the current city boundaries. However, the plan also states that, "*the existing system is a 'one-pass' biological treatment system with reduces the strength of the sewage but not to the level that will be required by future discharge standards. The existing system does not meet typical secondary treatment standards.*" The plan suggests different options available to the city, however each method of disposal or water reuse will determine the necessary standards. If the wastewater is to be used for irrigation of parks or playgrounds the treatment requirements are the highest. Irrigation of greenbelts or roadway medians requires a lower level of treatment; and crop irrigation for animals requires an even lower level. The existing system is adequate for field crop irrigation.

The existing wastewater treatment system is located along the Tuolumne River west of the Hickman Road Bridge. Wastewater is collected throughout the city and then treated in four reinforced concrete aeration ponds (approximately 128,000 square feet), before being pumped to storage ponds. Effluent from the storage ponds is then pumped to four drying beds across the Tuolumne River.

### ***Projected Wastewater Flows***

RMC developed a *Sewer System Master Plan* to determine future sewer treatment and disposal needs for the city of Waterford's annexation area. The master plan combined the base water flow (BWF) with dry weather groundwater infiltration (GWI) to form a single component, termed average dry weather flow (ADWF). Unit ADWF factors (in gpd/acre or gpd/person) were combined with buildout land use information (acreage and population density) to calculate the ADWF input for each parcel in the land use database.

Proposed residential areal ADWF factors were developed using the following formula:

$$\text{ADWF Factor (gpad)} = [\text{Residential Density}] * [\text{Population Density}] * [90 \text{ gpcd}]$$

Residential density was assumed to be 4.5 dwelling units per acre and population density was assumed to be 3.5 persons per dwelling unit. The proposed per capita sewage generation factor of 90 gallons-per-capita-per-day (gpcd) is based on the flow generation factor for future residential land uses in the city of Winters and has been assumed to similarly represent the future characteristics of residential areas in the study area.

Non-residential flows were also generated based on an areal method for the two proposed non-residential land use categories. Areal flow generation factors of 2,000 gpad and 2,500 gpad for industrial and general commercial land use, respectively, are based on representative planning flow generation factors for the city of Winters.

Sewer system facilities must be sized to convey peak flows in the system. Since the study area's proposed future collection system was modeled as a steady-state system, a conservative master plan criterion was used that assumed the peak I/I flow would coincide with the peak dry-weather flow (PDWF).

Because the city does not have any current flow monitoring data, a peaking factor of 3 was assumed. Similarly, a conservative areal I/I generation factor of 600 gpad was assumed. The following table presents the estimated ADWF and PWWF for the study area.

**Table 3.17.6  
Study Area Wastewater Flow Projections**

<b>Land Use Category</b>	<b>Gross Acreage</b>	<b>Unit Flow Factor</b>		<b>Build-out ADWF (mgd)</b>	<b>Build-out PDWF (mgd)</b>
Low Density Residential	1,316	1,215	gpad	1.60	5.59
Industrial	126	2,000	gpad	0.25	0.83
General Commercial	48	2,500	gpad	0.12	0.39
<b>TOTAL</b>				1.97	6.81 <sup>a</sup>

<sup>a</sup> Does not include approximately 1.07 mgd of non-study area wastewater flows (i.e., from schools, residential areas, homes currently on septic tanks, flows from River Pointe, etc.) from adjacent areas of the existing city system that in the future may be conveyed through the new sewers recommended in this master plan.

#### ***Wastewater Treatment Plant Capacity Analysis***

RMC has developed a *Wastewater Treatment Plant Assessment Report* dated March 2006.

This report further refined wastewater flow projections based on gallons of flow per capita per day (gpcd). Population growth in the study area will come from a combination of buildout (maximum utilization of available space) within current city limits and growth in the annexation area. Current population within the present city limits is approximately 7,800 people. The annexation area is currently undeveloped with no significant population; however, growth is anticipated to occur in the near future as new developments are constructed.

For the purposes of the assessment, two separate approaches were taken to determine population projections for the city:

- A “low growth” scenario based on California Department of Finance forecasts for Stanislaus County; and
- A “high growth” scenario based on projected land use type and residential densities.

The study projected residential flow projections based on per capita flow rates and projected population estimates. The current per capita flow rate projection is estimated to be approximately 75 gallons per capita per day (gpcd) based on the current annual average flow rates observed at the WWTP (0.58 mgd) and the current population of 7,800. This per capita flow rate is lower than what is typically observed for other systems (e.g., 90-100 gpcd) and may be due to the lack of infiltration and inflow to the system. Some high growth communities have experienced increases in per capita flows with new development because of the higher ratio of children. To allow for a range of possible per capita flow rates in the future, wastewater flow projections were developed using both 75 gpcd and 90 gpcd.

The following table shows the residential flow projections (annual average flows) for both the “Low Growth” and “High Growth” scenarios and for 75 gpcd and 90 gpcd.

**Table 3.17.7**  
**Residential Flow Projections (Annual Average Flows)**

Year	Residential Flow Projections (mgd)			
	Low Growth		High Growth	
	75 gpcd	90 gpcd	75 gpcd	90 gpcd
2005	0.59	0.70	0.59	0.70
2010	0.78	0.94	0.80	0.95
<b>2015</b>	<b>0.89</b>	<b>1.06</b>	<b>1.00</b>	<b>1.20</b>
2020	0.99	1.19	1.19	1.43
2025	1.10	1.31	1.40	1.67
2030	1.19	1.43	1.60	1.92
2035	1.31	1.58	1.89	2.27
<b>2040</b>	<b>1.43</b>	<b>1.71</b>	<b>2.12</b>	<b>2.54</b>

The study factored industrial and commercial flow projections. There is a small amount of land that is slated for industrial and commercial use in the annexation area. The wastewater contribution from these future uses were determined on the basis of unit factors as described above, gpcd. Since the majority of projected use for the annexation area is residential, the contributions to wastewater flow from the commercial and industrial sources are relatively small (see above).

These commercial and industrial projections were combined with residential projections to yield the total wastewater flow projections in the following table.

**Table 3.17.8  
Total Wastewater Flow Projections**

Year	Wastewater Flow Projections (mgd)			
	Low Growth		High Growth	
	75 gpcd	90 gpcd	75 gpcd	90 gpcd
2005	0.59	0.70	0.59	0.70
2010	0.83	0.99	0.85	1.00
<b>2015</b>	<b>1.00</b>	<b>1.17</b>	<b>1.11</b>	<b>1.31</b>
2020	1.15	1.35	1.35	1.59
2025	1.31	1.52	1.61	1.88
2030	1.45	1.69	1.86	2.18
2035	1.63	1.90	2.21	2.59
<b>2040</b>	<b>1.80</b>	<b>2.08</b>	<b>2.49</b>	<b>2.91</b>

***Wastewater Treatment Plant Capacity Analysis***

This report states that the current WWTP is rated to accommodate flows up to 1.0 mgd. It is anticipated that the existing treatment and disposal capacity will be exceeded between 2010 and 2015, depending on the growth rate and flow rate assumptions used.

While both the aeration basins and percolation ponds currently have a capacity limited to 1.0 mgd, the previous WWTP Master Plan prepared by DJH Engineering indicated that the capacity of the percolation ponds could be increased to 1.5 mgd by constructing two new basins east of the existing ones. The table below presents the estimated year of occurrence for when these treatment and disposal thresholds are exceeded under the four wastewater flow projections scenarios.

**Table 3.17.9  
Timing for Exceeding Capacity Thresholds**

Milestone Event	Year of Occurrence			
	Low Growth @ 75 gpcd	Low Growth @ 90 gpcd	High Growth @ 75 gpcd	High Growth @ 90 gpcd
Exceed 1.0 mgd Treatment Capacity	2015	2011	2013	2010
Exceed 1.5 mgd Capacity Of Expanded Percolation Ponds	2032	2025	2023	2019

***Expanded Wastewater Treatment Facility***

As shown in Table 3.17.9, three of the four wastewater projection scenarios indicate that the existing treatment capacity will be exceeded prior to the LAFCo 10-year planning horizon (2015). The site cannot accommodate additional aeration basins, and the existing process will not achieve future discharge requirements, so a new treatment system will be required. The city can still use percolation ponds for effluent disposal, but will need to add two new ponds (as suggested by the DJH report) to increase the capacity to 1.5 mgd.

The WWTP currently operates under Waste Discharge Requirements (WDR) Order No. 94-273, which was issued in 1974. The provisions of this permit limit the monthly average dry weather flows to 1.0 mgd – so a new WDR will be required to expand the capacity of the existing system.

Based upon more recent discharge permits issued in the central Valley, the new permit will likely have more stringent water quality standards for nitrate and BOD.

In addition to meeting water quality requirements, the city will probably be required to increase the level of effluent monitoring of the river water both upstream and downstream to demonstrate that the treatment plant is achieving the water quality required and that the percolation ponds are not impacting the river.

While there are some recent WDRs that require filtration and disinfection prior to land application of effluent, these permits are typically for wastewater discharges that also discharge to surface waters during a portion of the year. However, given that Waterford's percolation ponds are located adjacent to the Tuolumne River, there is a possibility that the Central Valley RWQCB will impose more stringent limitations for effluent disposal.

### ***Site Constraints***

In addition to capacity limitations and water quality requirements there are other considerations that will impact future WWTP planning. The present site layout possesses a unique geometry. The aeration basins, which overlook the Tuolumne River are situated down a steep slope from the south edge of town and are contained in a long narrow site that is approximately 100 feet wide. Any significant expansion of the aerations basins is prohibited by presence of the slopes on either side – rising to the north towards the city and dropping to the south to meet the Tuolumne River. Since there is no room for expansion of the treatment ponds, any capacity expansion must be done within the current area occupied by the aeration basins (roughly 100 ft. x 1300 ft.).

### ***Wastewater Treatment System Expansion Alternatives***

***Use Alternate Site Analysis*** The *Wastewater Treatment Assessment Report* examined phasing out the existing WWTP and utilizing a new site to meet the capacity and treatment requirements for a new WDR. This has the advantage of providing a WWTP design that can accommodate flow well into the future. The disadvantage will be higher up front costs incurred to construct an entirely new facility including the high conveyance costs to the new site.

Another option, once the current WWTP capacity is exceeded, is to construct new facilities at a new treatment and disposal site. Three potential sites have been identified for a new WWTP (see Figure 3.17.6):

- A. Northeast of the city near Tim Bell Road
- B. North of the city near Lone Oak Road
- C. South of the river

The site located south of the river (Site C) has a few advantages in that (1) it could serve as a joint facility treating wastewater from both Waterford and Hickman; (2) it may be possible to obtain less expensive land through negotiations with local nurseries.



**Figure 3.17.6**  
**Alternative Wastewater Treatment Sites**



This option has the following advantages:

- It allows the city to continue land application of effluent, thereby avoiding major regulatory hurdles associated with discharge to surface water.
- It keeps control of the wastewater system within the city of Waterford (avoiding potential institutional issues)
- Without the constraints of the existing site, it will be possible to implement a simple, cost effective treatment such as Bioloac®. The equipment cost for 3.0 mgd Bioloac system is only \$1.7 M.

However, it also has a number of cost implementation constraints. The cost of legal, environmental, land, and conveyance facilities may far outweigh the additional cost of an MBR.

***Participation in a Regional Wastewater System Alternative***

Another potential long-term option for the city is to become a regional partner with Modesto or Turlock, exporting wastewater for treatment and disposal. Both of these cities have considered turning their respective WWTPs into regional facilities.

*Turlock Regional System* In order to partner with the City of Turlock, an 18-inch diameter sewer trunk line would need to be extended approximately 8 miles to the nearest connection in the

vicinity of the city of Hughson. Assuming a unit cost of \$8 per inch diameter per linear foot, this would result in a capital cost of approximately \$6.1M.

*Modesto Regional System* In order to partner with the City of Modesto, the main sewer trunk line would need to be extended approximately 20 miles to the nearest connection that can accommodate the flow. Assuming a unit cost of \$8 per inch diameter per linear foot, this would result in a capital cost of approximately \$15.2M

The *Wastewater Treatment Plant Assessment Report* provided an analysis of improvements to the treatment system that will be needed in the near-term planning horizon, which is described as being the year 2015. This date corresponds to LAFCos timeframe for assessing the city's ability to serve the proposed areas of annexation. Five potential treatment alternatives were evaluated for near-term improvements. They are:

- Conventional Activated Sludge treatment
- Oxidation Ditch
- Biolac® Process
- Sequencing Batch Reactors (SBR)
- Membrane Bioreactor

These alternatives will generally use an extended aeration activated sludge process with a similar biological nutrient removal (BNR) process approach to nitrogen removal. Nitrification of ammonia is achieved with longer retention times in the aeration cycle. De-nitrification of the nitrate is achieved through anoxic zones with a recycle of activated sludge.

Descriptions of the alternative wastewater treatment systems examined are as follows:

*Conventional Activated Sludge (CAS)* Upgrading the existing treatment process to a conventional activated sludge system is one option for meeting the capacity and water quality requirements. This alternative involves modifying the current treatment process through the addition of primary sedimentation, additional mixing and anoxic tanks, - aeration tanks, and secondary clarifiers. However, the existing site is not large enough to accommodate the addition of these facilities, so this alternative would need to be located elsewhere.

*Oxidation Ditch* Oxidation ditch treatment is a modified activated sludge biological treatment process that utilizes long retention times to remove biodegradable organics. They are typically complete mix systems consisting of an oval-shaped basin that circulates the activated sludge in a "race track" and secondary clarification. Nitrate removal can be accomplished through pre-anoxic cells. The main advantages of the oxidation ditch are simplicity of equipment and operation, and a high level of inherent mixing. Oxidation ditches require minimal operator maintenance. Given the constraints of the existing site, this alternative would be difficult to fit on the existing site.

*Biolac® Process* Biolac® is an activated sludge process that uses extended retention of biological solids to achieve lower BOD and ammonia levels. Nitrate removal can be accomplished through a "wave oxidation process" whereby oxic/anoxic zones travel through the treatment system via coordinated cycles of oxygen delivery. This process is simple to operate and

is reliable and stable with low energy requirements and low construction costs compared to other activated sludge systems. The main cost savings is that the system can be installed in earthen basins reducing the concrete costs. However, the existing site is too narrow for the Biolac® process to accommodate the projected flow rates, so this alternative would need to be located elsewhere.

*Sequencing Batch Reactor (SBR)* A sequencing batch reactor (SBR) is another type of activated sludge system in which equalization, aeration and clarification all occur in a single reactor, by cycling through a series of steps: fill with anoxic mixing, aeration, settling, and decanting. Typically two or more batch reactors are used to optimize system performance. SBR systems are typically used for flow rates less than 5 mgd and have the advantages of operational flexibility and minimal footprint. A higher level of maintenance is typically required for these types of systems.

*Membrane Bioreactors (MBRs)* MBRs utilize an activated sludge bioreactor for BOD removal and employ membranes to achieve biomass and solids separation. The primary advantages of MBR are that the aeration basins can be reduced in size because they can be operated at mixed liquor concentrations of 10,000 mg/l compared to 2500 mg/l for the other systems that require secondary clarifiers, and do not need secondary clarifiers for solids settling. Very high quality effluent, including nitrate removal can be obtained through MBRs in a relatively small footprint. The costs of MBRs can be high due to both capital costs and operational costs including high energy, and they need to replace membranes every 5 to 7 years.

The report concludes that, in general, the activated sludge options are simple systems that can achieve the water quality objectives with comparatively low costs – the primary constraint is that the existing WWTP site is not large enough to accommodate any of these treatment systems, with the exception of the SBR. The MBR, on the other hand, can produce excellent quality water within a very small footprint – but the capital and operation costs are much higher.

The percolation pond capacity will need to be expanded to accommodate the additional effluent flows. This can be addressed by constructing two additional percolation ponds to the east of the existing ponds. The report states that the city has expressed a preference for continuing to utilize the existing WWTP site for wastewater treatment and disposal through the 2015 planning horizon. To this end, an SBR or an MBR system would need to be pursued. The report compared the two alternatives with respect to water quality, ease of operation, ease of expansion, ease of implementation and cost.

The report states that the MBR system will produce higher quality effluent than the SBR system. With respect to ease of operation, the MBR system is more complex than the SBR system. The small footprint of the MBR system allows for expansion up to 3.0 mgd at the current site, providing more flexibility for long term options than the SBR. With respect to ease of implementation, the construction of the MBR system will have less of an impact than the construction of the SBR system due to its smaller footprint size. However, the MBR system is more costly to construct and to operate and maintain.

***Long Term Improvements:***

For the long term planning horizon, there are two key considerations:

1. The existing site is limited in size and therefore restricts the treatment capacity and options available.
2. The existing percolation disposal capacity is limited to 1.5 mgd.

The ultimate limiting factor is the maximum capacity available for the percolation ponds at the current WWTP site. The report states that three options exist for the long term.

1. Construct an MBR system at existing site and develop additional methods of effluent disposal beyond 1.5 mgd.
  - a. Upsize the effluent pipeline and purchase additional land for more percolation ponds; or
  - b. Secure an NPDES discharge permit for the balance of the flow beyond the capacity of the percolation ponds; or
  - c. Purchase additional land for storage of effluent during the non-irrigation season, and implement a recycled water system.
2. Construct a wastewater treatment and disposal system at another site.
3. Become a partner in a regional wastewater system.

The report presents the advantages and disadvantages of each alternative. The report concludes with the next steps that need to be taken and timeframes for the necessary steps. The wastewater flow projections developed as part of the report indicate that the existing treatment and disposal capacity will be exceeded at some point between 2010 and 2015, within the LAFCo planning horizon. The table below summarizes some of the next steps that need to occur under the worst case (plant capacity exceeded in 2010) and best case (plant capacity exceeded in 2020) scenarios.

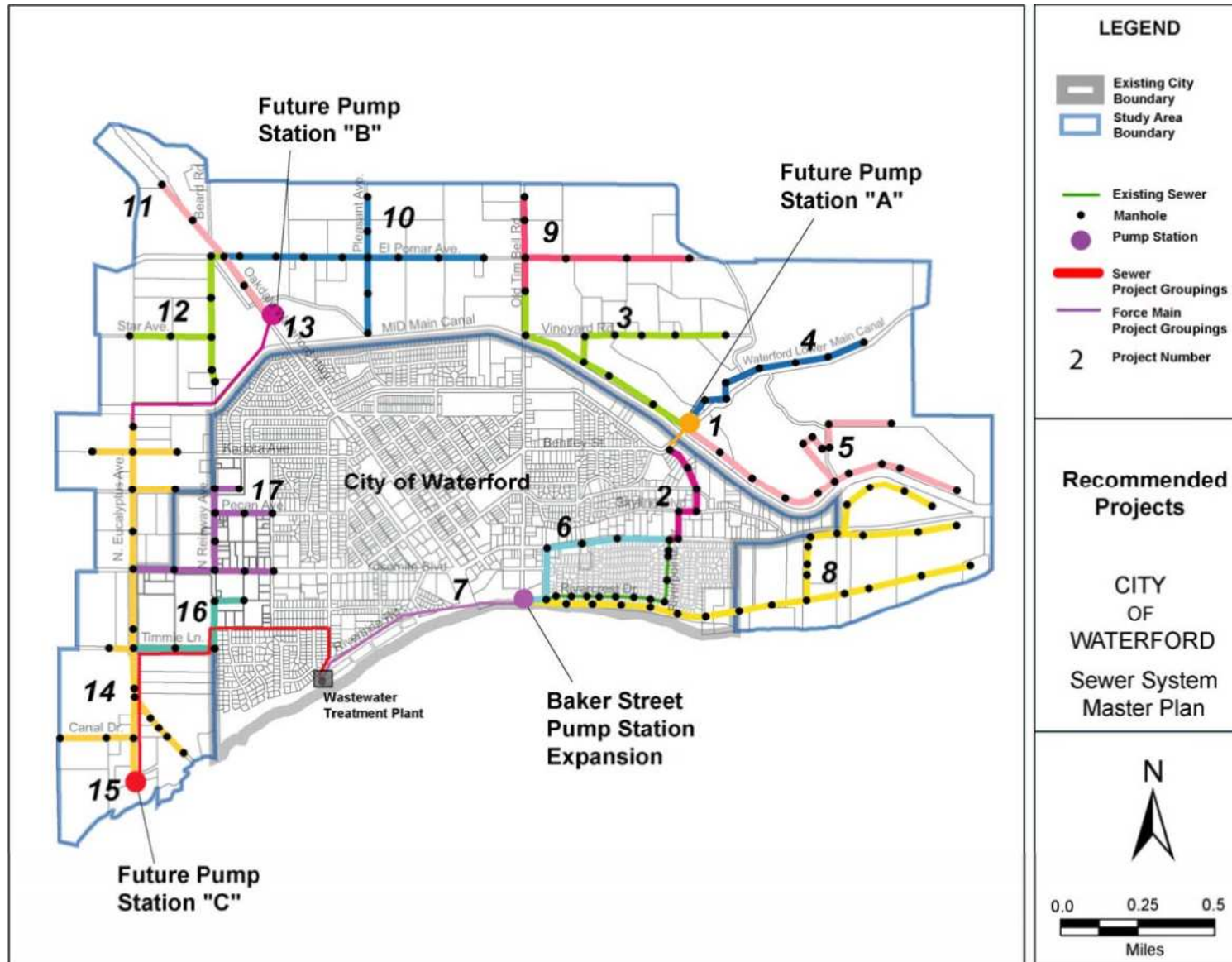
***Sewer System (Collection) Expansion***

The *City of Waterford Sewer System Master Plan (February 2006)*, as adopted by the city in April 2006, contained plans and specifications for the expansion of the existing sewer collection system to serve the city's urban growth area. The following provides an overview of some specific design and constructability considerations that were used in developing the recommended projects, which are shown in Figure 3.17.7.

***Project Descriptions and Costs***

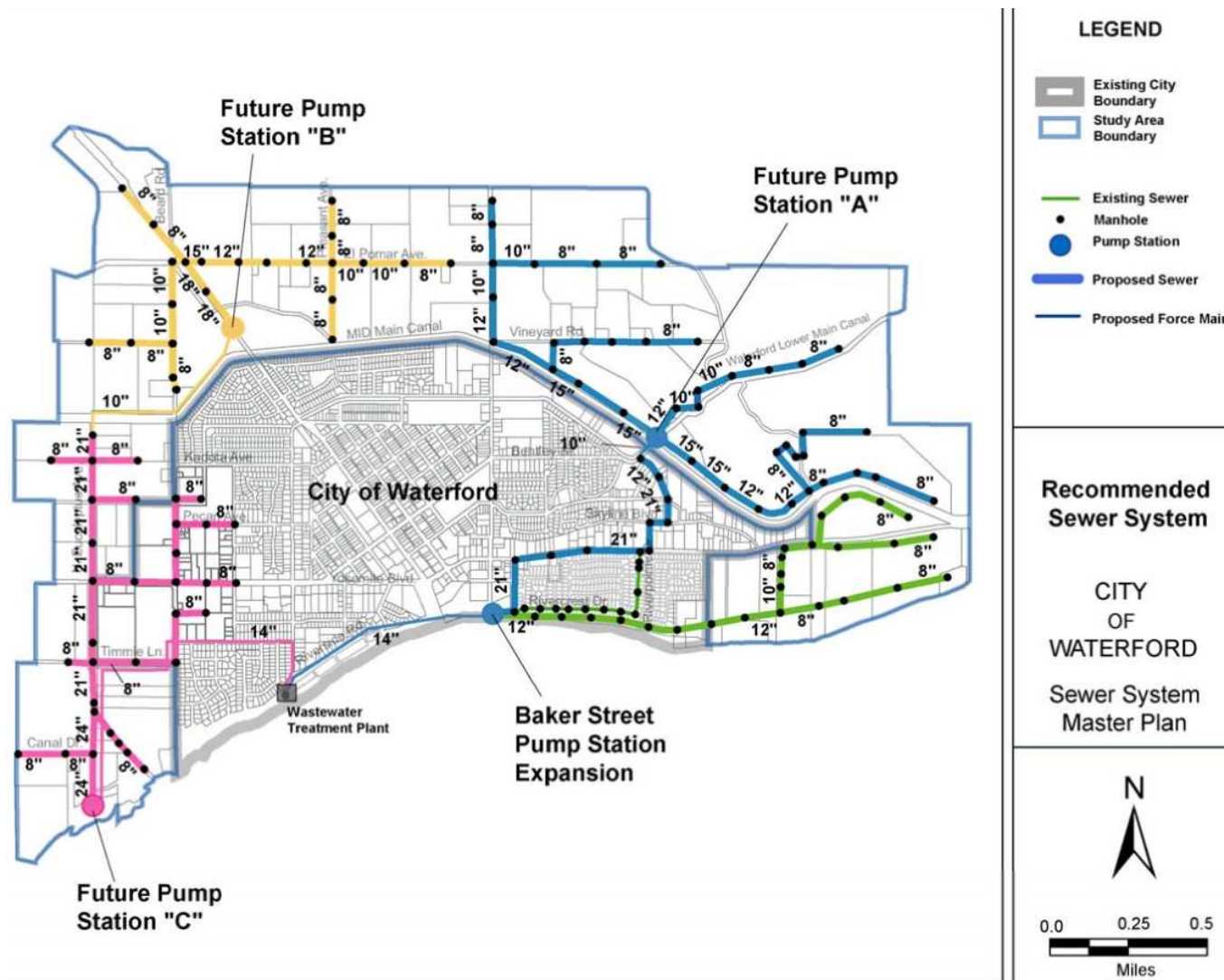
A total of 17 projects, which include the trunk sewer system only (i.e., small collector sewers are not included), have been developed and recommended for the future sewer collection system in the study area. Figure 3.17.7 presents the 17 recommended projects. Figure 3.17.8 gives the diameters for all pipes in the recommended sewer system. Descriptions, costs, and phasing of the recommended projects, as well as any associated implementation issues, are presented in the subsequent sections.

## Recommended Sewer System Projects





**Figure 3.17.8**  
**Pipe Diameters for Recommended Sewer System**



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The proposed projects for improvements to the city's sewer collection system include four combined pump station and force main projects and thirteen gravity sewer projects. Individual project descriptions, including pipe diameters, pipe lengths, pump station parameters, and estimated costs, are presented in Table 3.17.10.

**Table 3.17.10**  
**City of Waterford Sewer (Collection) System**  
**Proposed Improvement/Extension Project List**

Project No.	Description	Diameter (in)	Length (ft)	Design Flow at Downstream Segment (mgd)	Pump Station Firm Capacity * (mgd)	Estimated Construction Cost *	Estimated Capital Cost *
1	Future Pump Station A						
	Future Pump Station A	---	---	---	2.47 mgd	\$500,000	
	Single Force Main to Skyline-Bentley Sewer	10	490	2.47	---	\$245,000	\$1,211,000
	Subtotal					\$745,000	
2	Skyline-Bentley Sewer						
	PS A Force Main discharge to Bentley St. north of Welch St.	12	450	2.49	---	\$51,750	
	Bentley St. to Yosemite Blvd. and Riverpointe Dr.	21	1,710	2.64	---	\$273,600	\$529,000
	Subtotal					\$325,350	
3	Vineyard Road Sewers						
	Vineyard Rd. to MID Canal east of Old Tim Bell Rd.	8	2,830	0.20	---	\$240,550	
	Old Tim Bell Rd. to junction with 8-in sewer at MID Canal	12	1,840	0.69	---	\$211,800	
	Junction at MID Canal to Future Pump Station A	15	2,060	1.01	---	\$225,500	\$1,101,000
	Subtotal					\$677,650	
4	Waterford Lower Main Canal Sewers						
	Along WLMC to just west of Lateral Number Eight	8	1,830	0.35	---	\$109,800	
	East of Lateral Number Nine to just northeast of MID Canal	10	1,290	0.53	---	\$88,200	
	Northeast of MID Canal to Future Pump Station A	12	550	0.60	---	\$49,500	\$402,000
	Subtotal					\$247,600	
5	Eastern Area Sewers						
	Sewers north and east of junction of MID Canal and Lateral Number Eight	8	5,080	0.62	---	\$304,800	
	Just east of Lateral Number Eight to MID Canal north of Bentley Street	12	1,840	0.75	---	\$147,900	
	MID Canal to Future Pump Station A	15	1,420	0.85	---	\$158,200	\$999,000
	Subtotal					\$608,600	
6	Yosemite Boulevard Sewers						
	Skyline Blvd. and Bentley St. to Baker Street PS	21	3,290	2.64	---	\$528,400	\$855,000
	Subtotal					\$528,400	
7	Baker Street Pump Station Expansion						
	Baker Street Pump Station Expansion	---	---	---	3.81 mgd *	\$800,000	
	Single Force Main to WWTP *	14	3,790	3.81	---	\$303,200	\$1,488,000
	Subtotal					\$903,200	

(continued on next page)

**The City of Waterford**  
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**Table 3.17.10 *Continued***  
**City of Waterford Sewer (Collection) System**  
**Proposed Improvement/Extension Project List**

Project No.	Description	Diameter (in)	Length (ft)	Design Flow at Downstream Segment (mgd)	Pump Station Peak Capacity * (mgd)	Estimated Construction Cost *	Estimated Capital Cost *
8	<b>Southeastern Area Sewers</b>						
	Northern branch to midway between northern and southern branches	8	5,100	0.30	---	\$311,400	\$1,554,000
	Southern branch to junction with northern branch	8	2,820	0.19	---	\$169,200	
	Northern branch to junction with southern branch	10	611	0.52	---	\$42,770	
	Junction of northern and southern branches to Baker St. PS	12	4,810	0.71	---	\$492,900	
	<b>Subtotal</b>					<b>\$968,270</b>	
9	<b>Old Tim Bell Road Sewers</b>						
	El Pomer Ave. to just east of Old Tim Bell Rd. to El Pomer Ave.	8	3,120	0.29, 0.09	---	\$295,200	\$626,000
	El Pomer Ave. east of Old Tim Bell Rd. to just north of Vineland Rd.	10	1,280	0.52	---	\$110,700	
	<b>Subtotal</b>					<b>\$384,900</b>	
10	<b>El Pomer Avenue Sewers</b>						
	Sewers on Pleasant Ave. El Pomer Ave. east of Pleasant Ave.	8	3,780	0.37, 0.22	---	\$319,800	\$1,165,000
	East of Pleasant Ave. on El Pomer Ave. to Pleasant Ave.	10	1,200	0.42	---	\$114,000	
	El Pomer Ave. and Pleasant Ave. to just east of Oakdale Waterford Hwy.	12	2,170	1.01	---	\$249,590	
	El Pomer Ave. to Oakdale Waterford Highway	15	250	1.12	---	\$33,750	
	<b>Subtotal</b>					<b>\$716,900</b>	
11	<b>Oakdale Waterford Highway Sewers</b>						
	Oakdale Waterford Hwy to El Pomer Ave.	8	1,610	0.36	---	\$136,850	\$526,000
	El Pomer Ave. and Oakdale Waterford Hwy to Future Pump Station B	18	1,290	2.35	---	\$187,050	
	<b>Subtotal</b>					<b>\$323,900</b>	
12	<b>Star Avenue Sewers</b>						
	Star Ave. to N. Reinway Avenue; N. Reinway Ave. to just south of El Pomer Ave.	8	2,180	0.26, 0.19	---	\$183,800	\$542,000
	N. Reinway Ave. to Oakdale Waterford Highway	10	1,580	0.56	---	\$150,100	
	<b>Subtotal</b>					<b>\$333,700</b>	
13	<b>Future Pump Station B</b>						
	Future Pump Station B	---	---		2.39 mgd	\$500,000	\$1,676,000
	Single Force Main to Western Trunk Sewers	10	3,480	2.39	---	\$469,250	
	<b>Subtotal</b>					<b>\$969,250</b>	



**Table 3.17.10 Continued**  
**City of Waterford Sewer (Collection) System**  
**Proposed Improvement/Extension Project List**

Project No.	Description	Diameter (in)	Length (ft)	Design Flow at Downstream Segment (mgd)	Pump Station Firm Capacity <sup>a</sup> (mgd)	Estimated Construction Cost <sup>b</sup>	Estimated Capital Cost <sup>c</sup>
14	<b>Eucalyptus Avenue Sewers</b>						
	All east-west sewers intersecting north-south Eucalyptus trunk sewer	8	5,110	varies	---	\$308,800	\$2,418,000
	Eucalyptus Ave. from PS B Force Main discharge to just south of Timmie Ln	21	4,490	3.37	---	\$713,800	
	South of Timmie Lane to Future PS C	24	1,490	4.00	---	\$487,500	
Subtotal:						\$1,487,700	
15	<b>Future Pump Station C</b>						
	Future Pump Station C	---	---	---	4.07 mgd	\$850,000	\$1,887,000
	Single Force Main to WWTP	14	6,720	4.07	---	\$511,350	
Subtotal:						\$1,161,350	
16	<b>Timmie Lane Sewers</b>						
	East of N. Railway Avenue to Eucalyptus Avenue Sewer	8	2,670	0.14	---	\$226,950	\$369,000
Subtotal:						\$226,950	
17	<b>North Railway Avenue Sewers</b>						
	All sewers east of N. Eucalyptus Ave.	8	5,850	0.26	---	\$407,250	\$808,000
Subtotal:						\$407,250	
18	Master Plan Implementation and Management <sup>e</sup>						\$901,000
TOTAL							\$18,926,000

- a. Firm capacity is the pump station capacity with the largest pump not operating.
- b. Baseline Construction Costs were calculated based on the unit costs presented in Table 3-5.
- c. Estimated Capital Cost = (Baseline Construction Cost) x (1.625). See page 3-16.
- d. The firm capacity presented for BPS represents study area flows and the future flows from homes currently on septic tanks; the figure shown does not include flows from parcels currently draining to BPS. A more detailed analysis of the existing capacity of BPS should be evaluated prior to the implementation of Project 7.
- e. See description below.

The length for these projects totals approximately 4.2 miles for force mains and approximately 14.3 miles for future gravity sewers. Project 18, or Master Plan Implementation and Management, is assumed to be 3% of the total estimated capital cost for Projects 1 through 17. A small portion of the cost includes additional engineering analyses for certain recommended projects. The total estimated capital cost for all projects, including Project 18, is approximately \$18.9 million.

### **C. Storm Drainage/Flood Control**

The primary drainage pattern for the city of Waterford is south towards the Tuolumne River basin. Most runoff flows to the Tuolumne River through eight storm drains. However, two drain lines that collect storm water in the northern portion of the city drain into the MID canal along the northern boundary of the city. Waterford has been subject to localized flooding and a number of improvements have been installed to drain the area. These improvements include storm and detention ponds with lift/pump stations.

In response to growth that has occurred in Waterford, the city has used detention basins to address drainage needs. These basins serve a utilitarian purpose as storm water collectors, but also function as parks containing turf areas, picnic tables and benches.

The study area included in the Storm Drain Master Plan prepared by RMC comprises approximately 1,610 acres of agricultural land surrounding the city's existing boundary to the north, east, and west. The study area forms a semicircular arc around the existing city, and is bounded by the Tuolumne River on the south and Dry Creek on the north. The City of Waterford Vision 2025 General Plan Update proposes that the majority of existing vacant land in this study area is planned for low density residential development. Schools, parks, an artificial lake, and storm water detention basins will be located within

the low density residential area. The light industrial area may also have storm water detention basins.

There are a number of MID irrigation canals and drainage ditches in the annexed area and city. These facilities have historically been used for irrigation and drainage purposes. The MID Modesto Main Canal acts as a natural drainage boundary because water cannot flow from one side to the other without being intercepted by the canal.

It is anticipated that construction across the canal will be accomplished by boring and jacking underneath the canal. With the exception of the canal, all construction across the remainder of the MID canals and ditches will be completed using common construction methods. The following list provides some scenarios that may occur pending MID approval:

- 1) The canals/ditches remain in place and construction across them can be accomplished using open cut trenching methods,
- 2) The ditches will be replaced with pipe and covered, or
- 3) The ditches will be filled and abandoned.

The Storm Drain Master Plan assumes that the MID irrigation canals will not be used to convey storm water due to the inadequate sizing of canals and pending regulations for the use of canals. MID is concerned that storm water would introduce pollutants such as heavy metals into the system, and that it would consume capacity needed for delivery of irrigation water. As such, MID is in the process of establishing criteria for use of their canals to convey storm water.

Storm drains must convey runoff from the study area and any tributary areas. The annexation area is predominately flat receiving little runoff from outside areas except for the eastern boundary. On the eastern boundary of the study area there is some varied terrain outside of the boundary that is tributary to the study area.

Winter operation of the basin will be critical. The basin needs to provide storm water runoff storage as well as sustain the recreational functions. The basin will have to be operated at a set point less than the maximum capacity so that in the winter months there is room for the storm water runoff in the event of a storm. The pond cannot totally be emptied during the winter months. Operation of this basin was considered in the development of the model and proposed storm drain facility improvements.

For the purposes of storm water runoff design, the Storm Drain Master Plan proposes that the Stanislaus County Standards and Specifications shall guide the applicable design standards for storm drain facilities constructed in the area. Standards and specifications not covered by the county standards and the master plan shall conform to appropriate industry standards.

***Watersheds and Sub-sheds***

As shown in Figure 3.17.9 the Storm Drain Master Plan divided the watershed into sub-sheds and sub-basins based on topographic barriers such as the Modesto Main Canal, planned development, parcel information and proximity to the two outlets, Tuolumne River and Dry Creek. Sub-shed boundaries are also based on regional topographic information collected from an aerial survey, aerial photography, and USGS maps. For the proposed annexation area, there are 29 sub-sheds in total with an average area of 58 acres per sub-shed. The sub-sheds are shown in Figure 4 of the master plan.

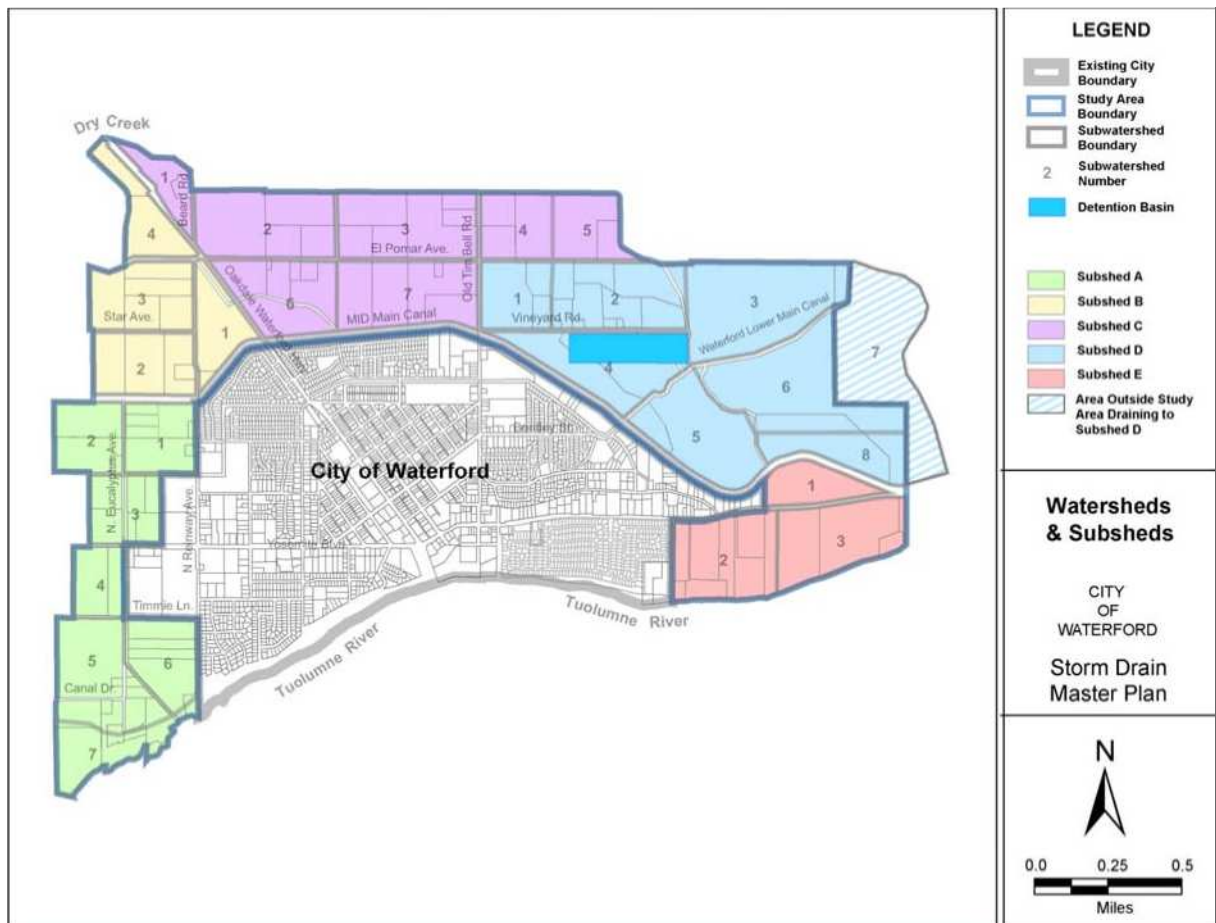
There is one planned residential development in the eastern study area. The developer has designed the development around a storm water detention/retention basin. The basin was initially designed to contain all the storm runoff from the development. According to the developer, the total storage of the basin is approximately 129 acre-feet. The basin also functions as a recreation pond for the surrounding homes and has aesthetic benefits.

***Best Management Practices***

The city will be required to reduce the discharge of pollutants to the maximum extent practicable (MEP) through implementation of Best Management Practices (BMPs) as part of its Storm Water Management Plan.

The State General Permit describes the MEP standard as an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP.”

**Figure 3.17.9**  
**Waterford Storm Drain System**  
**Watersheds and Sub-sheds**



The master plan does recommend the installation of pollution prevention devices at the tail end of the main laterals prior to discharge into the receiving water bodies (i.e. Tuolumne River and Dry Creek). These devices should be designed to be either in-line or off-line units capable of handling flows in the range of a 25-year event. The devices should be able to operate given the following minimum standards:

- Gravity driven
- No moving parts
- Large sump storage capacity
- All metal shall be stainless steel
- 80% TSS removal, 90% floatables and neutrally buoyant material removal
- Have the ability to remove grease and oil

#### ***Detention Basins***

Land development activities, including the construction of roads, convert natural pervious areas to impervious surfaces. These activities cause an increased volume of runoff

because infiltration is reduced, surfaces are generally smoother allowing more rapid drainage, and depression storage is reduced. Construction of drainage systems help produce an increase in runoff volume and peak discharge, as well as a reduction in the time to peak of a runoff hydrograph.

The temporary storage or detention/retention of excess storm water runoff as a means of controlling the quantity and quality of storm water releases is a fundamental principle in storm water management. The storage of storm water can reduce the frequency and extent of downstream flooding, soil erosion, sedimentation, and water pollution. Detention basins also function as multi-use facilities such as parks, lakes, water quality treatment facilities, and nature areas.

The proposed storm drain system incorporates detention basins at locations where the runoff exceeded the capacity of a reasonably sized main lateral. Although there is a corresponding loss of land associated with using detention basins, this is a more cost-effective alternative than using large diameter and dual pipe combinations. The detention/retention basins are strictly used for temporary storage of storm water in excess of the carrying capacity of the pipe network; however they can be planned to utilize recreation activities as well.

The proposed basins described in the master plan have been sized to detain the 100-year 24-hour storm with 1 foot of freeboard. The basin will have an inlet/outlet structure with a pipe connection to the main truck manhole. The pipe and basin will be sloped towards the main trunk manhole so that water can drain by gravity back to the main collection system as the water level recedes.

### ***Recommended Projects***

The master plan provides recommended projects for the annexation area. Figure 3.17.10 of the master plan shows the proposed locations of the five sub-shed areas and the locations for storm drains, manholes, and detention basins.

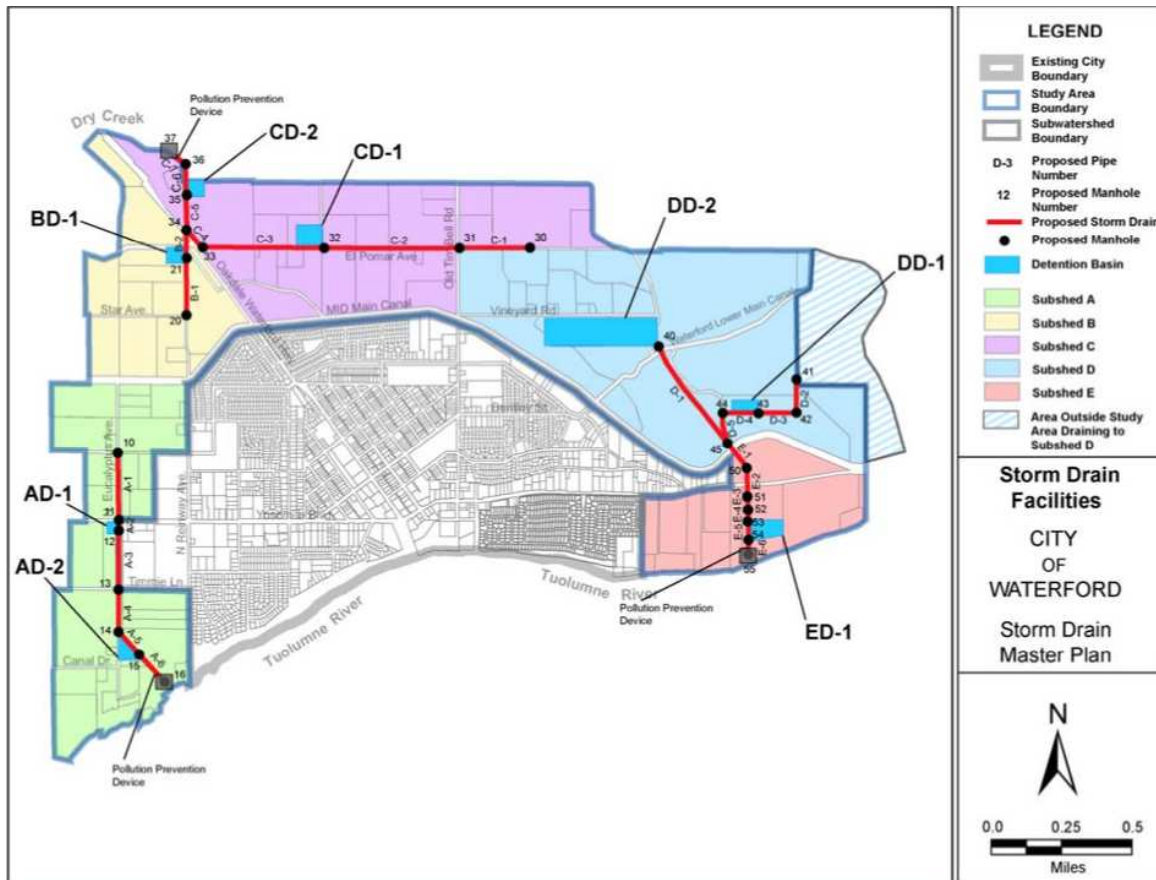
The recommended projects include main laterals and detention basins and are separated by sub-shed as shown in Figure 3.17.10. The following sections discuss the recommended projects by sub-shed.

Elevations presented in this section are preliminary based on existing topography and are subject to change pending development. Elevations at manholes should be continuously reevaluated as development occurs. At discharge locations with pollution prevention devices, the elevation is subject to change pending head-loss that will occur in the devices. Head-loss should be in the range of 0.5 to 3 feet. For manholes hydraulically connected to off-line detention basins, an elevation drop across the manhole of 0.5 feet was used to account for head-loss in the manhole.

Because the area in sub-sheds A, B and C is predominately flat, it is not anticipated that development will result in a significant change from the existing ground surface elevations; hence the profiles in these sub-sheds should not change at the time of

development. It is more likely that the area in sub-sheds D and E will face significant modifications to the existing terrain due to the undulating topography in that area. Fortunately there is plenty of elevation change between the upstream pipes and the outlet. As development occurs, the profile for this area will likely need to be adjusted.

**Figure 3.17.10**  
**Waterford Storm Drain System**  
**Watersheds and Sub-sheds Recommended Projects**



*Sub-shed A* Proposed facilities for sub-shed A, which is comprised of 7 sub-basins, are shown in plan layout in Figure 3.17.10. The proposed facilities include two off-line detention basins, pipe segments and manholes.

**Table 3.17.11  
Proposed Detention Basin Descriptions**

<b>Detention Basin</b>	<b>Bottom Elevation (ft)</b>	<b>Top Elevation (ft)</b>	<b>Depth (ft)</b>	<b>Side Slopes (ft)</b>	<b>Top of Basin Area (acre)</b>	<b>Volume (AF)</b>
AD-1	156	161	5	3:1	1.2	4.8
AD-2	155	159	4	3:1	2.9	11.0
BD-1	157	160	3	3:1	2.4	6.8
CD-1	157	162	5	3:1	5.0	22.9
CD-2	156	159	3	3:1	2.5	6.9
DD-1	175	179	4	3:1	3.6	13.3
DD-2	160	170	10	-	28	129

1) All elevations and volumes subject to change pending development of the study area.

The storm drain system will discharge to the Tuolumne River. A pollution prevention device shall be installed prior to discharge to the Tuolumne River at the location identified in Figure 3.17.10.

*Subsheds B and C* Proposed facilities for sub-shed B, which is composed of sub-basins 1 through 4, and sub-shed C, which is composed of sub-basins 1 through 7, are shown in plan layout in Figure 3.17. 10. A pollution prevention device shall be installed prior to discharge to Dry Creek at the location shown in Figure 3.17. 1o.

*Subshed B* In sub-shed B, storm water flows from sub-basins 1 and 2 shall be conveyed by B-1, and sub-basin 3 shall tie into manhole 21. Sub-basin 4 shall flow directly to an outlet at Dry Creek and all storm water infrastructure for this area shall be designed at the time of development. Pipe segment descriptions are provided in Table 3.17.11.

An off-line detention pond (BD- 1), located at the corner of El Pomar Avenue and Beard Road, will be used to detain storm runoff during larger storm events from sub-basins 1 through 3.

*Sub-shed C* In sub-shed C, sub-basin 5 shall connect to manhole 30 and be conveyed by C-1. Sub-basin 4 shall connect at manhole 31 and be conveyed by C-2 with the runoff from sub-basin 5. Sub-basins 3, 6 and 7 shall connect to the main laterals at manhole 32. Sub-basin 2 shall connect at manhole 35. Sub-basin 1 shall flow directly to an outlet at Dry Creek.

An off-line detention pond (CD-1), located at the intersection of El Pomar Avenue and Pleasant Avenue, will be used to detain storm runoff during larger storm events from sub-basins 3 through 7. Detention basin CD-2 shall be located at Beard Road near the Dry

Creek outfall and will collect runoff from sub-sheds B and C in excess of the downstream pipes. The storm drain system will discharge to Dry Creek.

*Sub-sheds D and E* Proposed facilities for sub-shed D, which is composed of sub-basins 1 through 8, and sub-shed E, which is composed of sub-basins 1 through 3, are shown in plan layout in Figure 3.17. 11 as noted above. A pollution prevention device shall be installed prior to discharge to the Tuolumne River at the location shown in Figure 3.17. 10.

*Sub-shed D* In sub-shed D sub-basins 1 through 5 shall discharge to the DD-2 detention reservoir. DD-2 shall store all the storm water for the 100-year 24-hour event. After the storm water has receded, the basin will be emptied as appropriate using gravity flow through D-1. The downstream pipes have capacity to convey a limited quantity of runoff from DD-2 should the need arise during a storm event. Operation of the reservoir shall be evaluated in future detailed hydraulic studies. There is sufficient elevation change in the downstream pipes should the need arise to lower the storm drain pipes.

Sub-basin 7 shall connect to manhole 41 and conveyed by D-2. Sub-basin 6 and 8 shall connect to manhole 43.

An off-line detention pond (DD-1), located near the existing Lateral No. 8, will be used to detain storm runoff during larger storm events from sub-basins 6 through 8. See Table 3.17.11 for the detention basin characteristics.

*Sub-shed E* Lateral E-1 shall be pipe jacked underneath the MID Main Canal with at minimum of three feet of cover between the canal flow-line and the pipe crown. The invert of the Main canal was not surveyed as part of this study and the estimated depth needs to be confirmed before downstream improvements are completed.

Sub-shed E sub-basin 1 shall connect at manhole 50. Sub-basins 2 and 3 shall connect at manhole 53. Detention basin ED-1 shall be constructed at the location shown in 3.17.10. The storm drain system will discharge to the Tuolumne River.

#### ***D. Gas and Electricity***

Pacific Gas and Electric (PG&E) Company provides gas to the city. State-wide, PG&E currently has 3.7 million gas customers. Through 35,000 miles of distribution pipelines, PG&E delivers gas to homes and business throughout a service area that stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east.

Electricity is provided by MID. The district's current electricity delivery system serves over 105,000 customers. Major electrical substations and transmission lines exist in the city. There is an electric substation in Waterford, major (60 KV) electric transmission lines run through the planning area. These transmission and pipelines run parallel with existing transportation corridors minimizing the effects on land use activities. Between 2002 and 2006, MID will have invested \$156 million in close-to-home power plants that

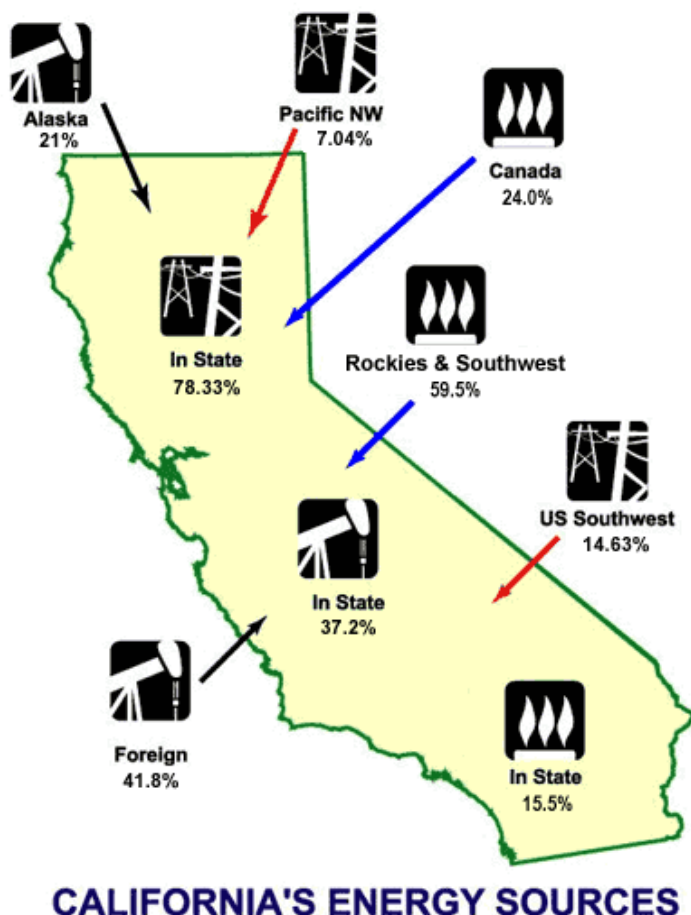


can, if needed, operate independently of California's electric grid. MID plans to build three more new substations, two in north Modesto and one in Waterford, between 2006 and 2008.

**Energy Resources: (from the California Energy Commission Website)**

According to the California Energy Commission, California has enjoyed many years of successful energy management because of a guiding policy that the state's economy is best served by a diversity of energy supplies. This "portfolio" approach to energy planning has given California the world's most diverse electricity generation system and has established the state as an international leader in demonstrating new transportation fuels and vehicles. In recent years, with the advent of deregulation, the state has been plunged into "uncharted territory" with tremendous challenges

**Figure 3.17.11**  
**California Energy Resources By Source**



### ***California Energy Supply***

Two primary fuels drive California's energy system: petroleum and natural gas. The state produces about 16 percent of the natural gas it uses, 42 percent of the petroleum and 77.7 percent of the electricity. The remaining energy is imported and consists of electricity and natural gas purchases from Canada, Pacific Northwest, Rocky Mountain states and the Southwest; and crude oil imported from Alaska and foreign sources.

According to the U.S. Department of Energy's Energy Information Administration, (*Primary Energy Consumed in California by Source, 1997*), California ranked 3rd in the nation in production of crude oil; 11th in production of natural gas; 3rd in net generation of hydroelectric power; and 6th in nuclear electricity. While it ranks 2nd in the total amount of energy consumed, it ranks 48th in the amount consumed per person. California ranks first in the use of energy in the residential, commercial and transportation sectors and 3rd in the industrial sector. The state is 2nd in the use of natural gas, petroleum and electricity (after Texas).

### ***Petroleum***

California's sources of crude oil have changed dramatically since the mid-1970s. At that time, the state imported 33 percent of its crude oil from foreign sources, and oil-fired power plants accounted for over half of the state's electricity generation. Today, foreign imports once again make up about 34 percent of California's petroleum supply, but oil-fired electricity generation is below 1 percent, replaced with cleaner alternatives.

California obtains about one-half of its crude oil supply from inside the state. The state extracts the maximum amount of oil from its declining oil fields using techniques such as thermally enhanced oil recovery. Alaska is the state's other major source of oil supply. Although Alaska oil accounted for 23 percent of petroleum brought into the state in 2003 (down from 50 percent in 1994), its availability is declining more sharply than that of California-produced oil. As the state's and Alaska's supplies decline, oil imported from foreign sources is increasing.

### ***Natural Gas***

For more than a decade, natural gas has supplied more than 30 percent of the state's total energy requirements. Because of its low price and clean-burning characteristics, natural gas has become the fuel of choice within California, particularly for electricity generation, and its use is expected to grow in the coming years. In 2004, about 88 percent of California's natural gas supplies were obtained from sources outside the state - 39 percent from the U.S. Southwest, 24 percent from Canada and 25 percent from the Rocky Mountain area.

In the last decade, three new interstate gas pipelines were built to serve California, expanding the over one million miles of existing pipelines connecting the state with gas-producing areas. Demand for natural gas in 1990 topped 2,025 trillion cubic feet. At full capacity, these new pipelines will provide California with a much needed additional 2.1 billion cubic feet of natural gas per day.

During the next two decades, natural gas is expected to play a key role in achieving California's environmental objectives. Forty percent of the state's electrical energy in 2004 was generated by gas. That amount may increase in the future.

### ***Electricity***

During the drought of the late 1970s, when less hydroelectric power was available, over two-thirds of California's electricity was generated from oil and natural gas. During the decade of the 1990s, California had one of the world's most diverse resource mixes for electricity generation. In 2003, about 26.6 percent of the state's 276,969 gigawatt-hours of electricity production was produced by renewable sources (including large hydroelectric). In 2003 California imported about 22.3 percent of its electricity supply from the desert Southwest and the Pacific Northwest.

### ***Transportation***

The California economy depends critically on the state's transportation system. At the same time, the transportation sector is a major user of energy in the state. Transportation is responsible for roughly 35 percent of California's energy consumption and over 85 percent of total petroleum use--petroleum provides more than 99 percent of the state's transportation fuel needs. Because petroleum is an international commodity, prices depend on a world market. As a result, the transportation system, and therefore the California economy, is vulnerable to circumstances outside of the state.

California's transportation sector is growing faster than the population. Since 1987, the number of vehicles within the state has increased by 24 percent. Although the average fuel economy of these vehicles has improved, the fuel savings achieved are overshadowed by an overall increase in the number of miles traveled combined with some erosion of fleet fuel efficiency.

California's nearly 26 million vehicles consume more than 15 billion gallons of gasoline and more than 2 billion gallons of diesel, making California the second largest consumer of gasoline in the world.

### ***Energy Efficiency***

The Energy Commission adopts regulations for building and appliance efficiency. Since the establishment *California's Energy Efficiency Regulations*, Californians have saved more than \$20 billion in electricity and natural gas costs. It is estimated that number will climb an additional \$57 billion by 2011.

These standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The current *Building Efficiency Standards* took effect June 1, 2001. New standards for 2005 have been adopted and will go into effect October 1, 2005.

### ***E. Solid Waste***

The city contracts for all refuse pick-up services within the city limits with Waste Management Company. The city of Waterford is served by landfill facilities operated by the county of Stanislaus. The Sanitary Landfill division operates the county's landfills. Currently, there is only one landfill in operation. This complex is located at 4000 Fink Road, Crows Landing, CA. Fink Road landfill, a 219-acre disposal site, is located in western Stanislaus County, three and a half miles west of the town of Crows Landing and twenty-five miles to the southwest of the City of Modesto. Stanislaus County owns and operates this facility, the successor to the closed landfill at Geer Road.

Active since 1973, Fink Road has been operating under the Waste Discharge Requirements No. 94-257, issued by the California Regional Water Quality Control Board, (RWQCB), Central Valley Region.



In the corner of the Fink Road site, is the Waste To Energy (WTE) cogeneration facility. Under a separate permit, Ogden Martin operates the WTE plant, owned by Modesto and Stanislaus County. The plant is considered separate from the landfill. The Fink Road Landfill is currently at approximately 50 percent capacity with a projected closing date of 2023 and an overall capacity of 12 million cubic feet.

### ***3.17.2 Environmental Impacts***

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To the extent that updating the general plan may result in future development within the city's sphere of influence, an increase in the demand for utilities and utility facilities such as sewer, water and storm drainage facilities will result. The city's existing utility facilities will require enhancement to accommodate such increases.

### ***A. Thresholds of Significance***

Appendix "G" of the CEQA Guidelines addresses potential impacts on Utilities and Service Systems as follows:

#### ***Would the project:***

- Exceed water treatment requirements of the applicable Regional Water Quality Control Board?
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
- Comply with federal, state and local statutes and regulation related to solid waste?

***ASSESSMENT OF WATER OR WASTEWATER FACILITIES:***

**DEFINITION OF ISSUE**

The term "water or wastewater facilities" includes water treatment and distribution facilities, wastewater treatment and disposal facilities, maintenance facilities and similar facilities for the purposes of providing water and wastewater services. Projects may result in demand for water and wastewater services that exceed existing facility capacity.

**THRESHOLD CRITERIA**

A project will normally have a significant impact on a water and wastewater facility if it would substantially interfere with the operations of an existing water and wastewater facility, or would put additional demands on a water and wastewater facility that is currently operating at capacity. The impact will be measured based on existing water and wastewater facility utilization and capacity compared to the increment of new demand created by the project. A project that would result in the need for a new or expanded water and wastewater facility may result in the determination of a significant impact on the provision of water and wastewater services in the community.

Where a project would result in the need for new or expanded water and wastewater facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of water and wastewater facilities, the impacts on water and wastewater facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

***ASSESSMENT OF STORM WATER DRAINAGE FACILITIES:***

**DEFINITION OF ISSUE**

The term "storm-water drainage facilities" includes culverts, bridges, storm water drains, storm water detention ponds, Best Management Practices for storm water treatment and similar storm water drainage facilities, used for the purposes of providing storm-water drainage services. Projects may result in demand for storm water drainage services that exceed existing facility capacity.

**THRESHOLD CRITERIA**

A project will normally have a significant impact on a storm water drainage facility if it would substantially interfere with the operations of an existing storm water drainage facility, or would put additional demands on a storm water drainage facility that is currently operating at capacity. The impact will be measured based on existing storm water drainage facility utilization and capacity compared to the increment of new demand

created by the project. A project that would result in the need for a new or expanded storm water drainage facility may result in the determination of a significant impact on the provision of storm water drainage services in the community.

Where a project would result in the need for new or expanded storm water drainage facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of storm water drainage facilities, the impacts on storm water drainage facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

### ***ASSESSMENT OF DOMESTIC WATER QUANTITY***

#### **DEFINITION OF WATER QUANTITY**

The amount of water from either an individual source (water wells) or public water purveyor necessary to meet the long term domestic water needs for development.

#### **DEFINITION OF TERMS**

*Availability Letter:* A statement from a public water purveyor indicating that a supply of domestic water is available or will be available to serve the development.

*Individual Water Supply System:* A water supply system consisting of a well or wells providing a supply of domestic water to fewer than five (5) service connections.

*Production Test:* A procedure used for determining the amount of water an individual well can produce and the long term reliability of the water source. The production test consists of a 24-hr. constant rate pump discharge test and a 12-hr. recovery test. The well must provide at least 5 gpm for each domestic service connection and must fully recover to the pre-test static water level.

*Public Water System:* A water system, regardless of type of ownership, for the provision of piped water to the public for domestic use, if such system has at least five (5) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days of the year, and has an un-revoked permit from the county Department of Environmental Resources or the State Department of Health Services.

#### **THRESHOLD CRITERIA**

An individual water system will be considered to create a potential significant impact on the environment if it does not comply with applicable sections of the following documents:

- Local code regulating the minimum amount of water required to be available for a domestic water supply.
- California Code of Regulations Title 22, Chapter 16 (California Water Works Standards).
- Water well production testing procedures established by the county Public Works Department and/or the county Department of Environmental Resources.

## ***ASSESSMENT OF DOMESTIC WATER QUALITY***

### **DEFINITION OF ISSUE**

*Domestic Water:* A supply of potable water used for human consumption or connected to domestic plumbing fixtures in which the supply is obtained from an individual water supply system or a public water system operating with an un-revoked permit from the county Department of Environmental Resources or the California State Department of Health Services

### **DEFINITION OF TERMS**

*Water Quality:* Refers to the chemical, biological, radiological, and physical quality of water used for human consumption.

#### *Drinking Water Standards:*

1. Primary drinking water standards that specify maximum contaminant levels (MCL) as described in Title 22, California Code of Regulations.
2. Secondary drinking water standards specify the maximum contaminant levels as described in Title 22, California Code of Regulation, which may adversely affect the odor or appearance of water, and may cause a substantial number of persons served by the public water system to discontinue its use.

*Maximum Contaminant Level (MCL):* The maximum level of a contaminant in water.

*Individual Water Supply System:* A system which obtains water from an onsite water well or wells used to supply domestic water to no more than four (4) service connections.

*Public Water System:* A system, regardless of type of ownership, for the provision of piped water to the public for domestic use, if such system has more than four (4) service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year, and require a permit from the county Environmental Health Department or the California Department of Health Services.

**Note:** The reader is directed to Title 22 of the California Code of Regulations for additional definitions (classifications) of public water systems.

### **THRESHOLD CRITERIA**

A domestic water system will be considered to create a potential significant impact on the environment with respect to water quality if it does not comply with the applicable State Drinking Water Standards as described in Title 22 of the California Code of Regulations, Section 64421 et seq.

**Note:** Domestic water quality regulations for water systems with over 200 service connections are enforced by the State Department of Health Services.

### ***ASSESSMENT OF FIRE FLOW REQUIREMENTS INFLUENCING WATER SUPPLY***

These standards are used to assess development project related impacts relative to required fire flow and, where applicable, requirements for private water systems having to do with storage needs (duration) land reliability.

#### **DEFINITION OF ISSUE**

Fire flow is defined as the number of gallons per minute (gpm) of water available from a fire hydrant in the event of an emergency situation. This issue will also cover requirements for a private water system when the project is not provided with water from a purveyor. Specific concerns for private water systems include, but are not limited to, flow, duration, and reliability.

#### **THRESHOLD CRITERIA**

A project will be considered having a significant impact if:

1. It can not meet the required fire flow as determined by:
  - a. The I.S.O. Guide for Determination of required fire flow.
  - b. The city or county Waterworks Manual as applicable.
  - c. The Uniform Fire Code (UFC).

### ***ASSESSMENT OF INDIVIDUAL SEWAGE DISPOSAL SYSTEMS***

#### **DEFINITION OF INDIVIDUAL SEWAGE DISPOSAL SYSTEM:**

A system which disposes of domestic waste (sewage) generated by individual residences and businesses located in areas without access to public sewer service. These are also referred to as septic systems and onsite sewage disposal systems.

#### **DEFINITION OF TERMS:**

*Alternative Sewage Disposal Systems* Specially designed systems that are used in areas in which conventional sewage disposal systems cannot be approved:

(1) Mound filtration system. This is an above ground disposal system consisting of a septic tank; wet well and pump, and an above ground mound effluent disposal field.

(2) Subsurface sand filtration system. A subsurface disposal system which utilizes a sand filtration system (bed) in areas with bedrock formations.

*Conventional Sewage Disposal System* A system consisting of a septic tank and an effluent disposal field of either leach lines or seepage pits.

#### **THRESHOLD CRITERIA:**

- A. Individual sewerage disposal systems will be considered to create a potential significant impact on the environment if it does not comply with applicable sections of the following documents:



- Uniform Building Code (UBC)
- Uniform Plumbing Code (UPC)
- city or county Sewer Policy
- Central Valley Regional Water Quality Control Board Basin Plan.

B. Individual sewerage disposal system that does not meet the Central Valley Regional Water Quality Control Board's Waste Discharge Requirements.

### ***ASSESSMENT OF SEWAGE COLLECTION/TREATMENT FACILITIES***

#### **DEFINITION OF ISSUE:**

Sewage collection/treatment facilities are those which collect wastewater from domestic, commercial, industrial and institutional uses, treat it to remove organic and inorganic hazardous or noxious waste materials, and discharge the treated effluent into the environment.

#### **THRESHOLD CRITERIA:**

- A. Public or community wastewater disposal systems will be considered to create a potential significant impact on the environment if it does not comply with Central Valley Regional Water Quality Control Board Basin Plan.
- B. Project that contributes to or results in wastewater discharge that does not meet the Central Valley Regional Water Quality Control Board's Waste Discharge Requirements.

### ***ASSESSMENT OF SOLID WASTE IMPACTS***

#### **DEFINITIONS**

*Integrated Solid Waste Management:* The systematic hierarchical administration of activities which provide for the collection, reuse, recycling, composting, transformation and disposal of solid waste.

#### **Definition of Technical Terms:**

The following definitions refer to terms used in these guidelines, and shall be used in the completion of the project impact assessment worksheet.

*Diversion Rate:* That amount of solid waste that is diverted from landfills by recycling and composting programs.

*Generation Rate:* That amount of solid waste produced by residential, commercial, industrial uses, etc.

*Project Waste Disposal Rate:* The residual amount of solid waste expected to be generated by the project reduced by the amount of materials diverted from disposal through source reduction, recycling, and/or composting.

*Recycling:* The process of collecting, sorting, cleansing, treating, and reconstituting

materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary for use in the marketplace.

*Source Reduction:* Any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes that generators produce, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials in the manufacturing process.

*Special Wastes:* Those waste products that are restricted from a Class 3 landfill site.

*Wasteshed:* A general geographic area which is served by a common waste handling, processing or disposal facility.

#### **THRESHOLD CRITERIA**

A project is considered to result in significant impacts to landfill capacity if it generates more than five percent of the expected average increase in waste generation thereby using a significant portion of the remaining landfill capacity and/or is inconsistent with the county Solid Waste Management Plan.

#### ***ASSESSMENT OF PUBLIC UTILITIES***

**DEFINITION OF UTILITIES:** Utilities include electrical, gas and communication facilities:

*Electric:* Electrical facilities include generation plants, transmission substations, and transmission lines.

*Gas:* The fixed transmission and distribution system for natural gas supplies and/or propane bulk storage, distribution system and domestic supply tanks.

*Communication:* Such uses and structures as radio and television transmitting and receiving antennas, radar stations, microwave towers and telephone facilities, community cable systems and other similar types of communication and telecommunication infrastructure.

#### **THRESHOLD CRITERIA:**

A project will normally have a significant impact on a public utility facility if it would substantially interfere with the operations of an existing public utility facility, or would put additional demands on a public utility facility that is currently operating at capacity. The impact will be measured based on existing public utility facility utilization and capacity compared to the increment of new demand created by the project. A project that would result in need for a new or expanded public utility facility may result in the determination of a significant impact on the provision of public utility services in the

community.

Where a project would result in the need for new or expanded public utility facilities and where the general plan and zoning maps of the city do not designate adequate areas for expansion of public utility facilities, the impacts on public utility facilities expansion may be considered potentially significant and will require further evaluation on a case-by-case basis.

***B. Potential Significant Impacts:***

*Utility and Service System Impacts Found Not to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's general plan implementation, the following aspects of a potential utility and service system impact are found not to exist or exist at levels well below any reasonable expectation that a significant adverse impact is likely to result:

- *Exceed water treatment requirements of the applicable Regional Water Quality Control Board?*

The city complies with all applicable Regional Water Quality Control Board requirements or has implemented programs to bring the city into compliance in the near future. The city has recently completed a *Wastewater Treatment Master Plan*. The plan states that the current system meets existing standards, but will not meet new anticipated standards set by the Regional Water Quality Control Board. With some minor improvements and modifications, the existing system will allow for growth anticipated within the current city boundaries. However, the plan also states that, *"the existing system is a 'one-pass' biological treatment system which reduces the strength of the sewage but not to the level that will be required by future discharge standards. The existing system does not meet typical secondary treatment standards."*

The city's wastewater treatment system will be required to comply with all standards and regulations relating to wastewater treatment. These requirements will be applied under the permitting process for the wastewater treatment facility and will ensure that any potentially significant impacts associated with wastewater treatment will be reduced to a less than significant level.

- *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Expansion of the city's water and wastewater treatment facilities are planned to occur in future years as growth demands create additional need. Future expansion of the water and wastewater systems will be done in accordance with state law and applicable environmental regulations. The regulatory environment under which the design, construction and operation of such systems will occur will ensure that system expansion will have a less than significant impact on the environment.

- *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

The city's storm water system will need to be expanded to accommodate new growth and development. The principles of design for the expanded system are not likely to result in any significant adverse impacts on the environment. The design, construction and operation of this system will be required to meet all applicable regulations and standards for the systems. The system will employ Best Management Practices to reduce the discharge of pollutants into the Tuolumne River and Dry Creek to the maximum extent practicable. The Storm Drain Master Plan recommends the installation of pollution prevention devices at the tail end of the main laterals prior to discharge into the receiving water bodies. The devices should be designed to be either in-line or off-line units capable of handling flows in the range of a 25-year event.

The installation of detention basins is designed to reduce the frequency and extent of downstream flooding, soil erosion, sedimentation, and water pollution.

The outlet structure for the main laterals at Dry Creek and Tuolumne River shall be designed and constructed to meet all applicable codes and standards. The structure is proposed to be constructed with concrete and consist of a headwall, wing-walls, and footing. Sufficient rock slope protection (rip rap) shall be placed at the outlet to prevent erosion from the storm water.

The regulatory environment and proposed construction standards will reduce the potential impact of the storm water system on the environment to a less than significant level.

- *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

The city will supply new development within the service area with groundwater until 2018 when the anticipated expansion of the Modesto Reservoir water treatment plant (MRWTP) is complete. At this time the city will supply the area within the MID service area (approximately 86% of the service area) with treated surface water from the MRWTP. The areas outside of the MID service area will be supplied by the city with groundwater. At build-out, according to the UWMP, the city's projected available surface water and groundwater supplies will be approximately 3,122 acre-feet per year (afy) and 3,286 afy, respectively. The total available supply at build-out is estimated to be 6,408 afy within the service area.

Projected residential water demands under proposed build-out conditions in the year 2030 are projected to be 3,132 afy inside and outside of the MID service area. Projected industrial and commercial demand in the year 2030 is projected to be 474

afy. Total demand then for residential, industrial and commercial purposes is projected to be 3,606 afy.

In conclusion, based upon the figures provided in the city's UWMP, the city of Waterford will have ample supply of water from surface and groundwater sources to serve the city's needs at build-out.

- *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

The Stanislaus County landfill does not have sufficient permitted capacity to accommodate the solid waste generated by growth and development in the county. It is estimated that with recent expansion and improvements, the remaining capacity of the site will last through 2010. The city of Waterford will not cause the landfill to exceed its capacity, but it will contribute to its meeting its capacity.

- *Comply with federal, state and local statutes and regulation related to solid waste?*  
The City of Waterford General Plan affirms, supports, and provides guidance for the implementation of federal, state and local statutes and regulation related to solid waste.

*Utility Impacts Found to be Potentially Significant:*

As a result of project analysis, based on data collected in the evaluation of the city's proposed general plan, the following potential utility impact is likely to result in a significant adverse environmental impact due to project implementation.

- *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the provider's existing commitments?*

Wastewater treatment capacity is being provided for by the city. The treatment facility and the collection system, have been designed to accommodate the anticipated growth of the city that is accommodated in the general plan.

The city's Sewer System Master Plan describes the improvements to the system that will need to occur to upgrade and expand the sewer system to meet future demands. The city's existing wastewater treatment plant does not have adequate capacity to serve the city's needs when flows exceed 1.0 millions per day. The current wastewater treatment plant site is limited with respect to expansion of percolation area. This is considered to be a significant impact requiring mitigation to reduce the significant impact to a less than significant level.

***C. Proposed General Plan Goals & Policies:***

***Goal Area- PF 1: Adequate Public Facilities***

**Policy PF 1:**

- 1.a.** Maintain level of service standards for each type of public facility and provide capital improvements needed to achieve and maintain the standards for existing and future populations.
- 1.b.** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy or use, or within a reasonable time as approved by the city, without decreasing current service levels below locally established minimum standards.
- 1.c.** Development shall be approved only if adequate public facilities or services needed to serve the development are available at the time the demand for the facility or service is created or within a reasonable time as approved by the city.
- 1.d.** Continue to develop and maintain city services that ensure optimum service levels at reasonable costs to both existing and newly annexed areas.
- 1.e.** Through long-range planning, anticipate utility and other public service needs of possible future annexation areas, and when feasible develop utility capacities to meet these needs.
- 1.f.** Growth and development throughout the urban area should be regulated, stimulated, and otherwise guided toward the development of compact concentrated areas to discourage sprawl, facilitate economical and efficient provision of utilities, public facilities and services, and expand transportation options to the public.
- 1.g.** Pursue advanced telecommunications technology improvements throughout the city in both public and private sector infrastructure.
- 1.h.** Work with telecommunications companies to establish high speed telecommunications links in Waterford.
- 1.i.** Develop a master plan for the city's storm water drainage system.

***Goal Area- PF 2: Adequate Funding for Capital Facilities***

**Policy PF 2:**

- 2.a.** Pursue all available funding sources for the development of capital improvement projects in order to optimally use limited city resources.
- 2.b.** Increase the tax base by encouraging and supporting the rehabilitation and improvement of the dilapidated and deteriorated areas of the city.
- 2.c.** Establish a growth impact fee program that adequately supports the costs of providing municipal services to new residents businesses and industry.
- 2.d.** Research the potential to apply redevelopment tax increment financing techniques for the improvement/replacement of infrastructure in older portions of the city.

**Goal Area- PF 3: Timely Programming for Capital Facilities**

**Policy PF 3:**

- 3.a.** Annually evaluate existing public facilities and community needs to determine necessary public improvements.
- 3.b.** Ensure that the *Capital Improvement Program*, and all associated capital facility documents are compatible with the city's general plan.
- 3.c.** Coordinate and cooperate with federal, state, regional and local jurisdictions, private industry, businesses and citizens in the planning and development of facilities affecting the community.
- 3.d.** Coordinate with the state, the Stanislaus County Council of Governments (StanCOG), Stanislaus County and other adjacent local government agencies in an effort to provide a set of standardized codes and regulations relating to capital facilities and community improvement.
- 3.e.** Support and encourage efforts for the cooperative planning, design and development of public facilities with other government jurisdictions and with the private sector to maximize efficiency, reduce costs and minimize impacts on the environment.

**Goal Area- PF 4: Adequate Maintenance of Capital Facilities**

**Policy PF 4:**

- 4.a.** Encourage the development of capital improvement projects that improve the city's operational efficiency or reduce costs by increasing the capacity, use, and/or life expectancy of existing facilities.
- 4.b.** Carefully evaluate potential benefits to be gained by the development of proposed capital facilities with the city's ability to operate and maintain such facilities.
- 4.c.** Develop and use programs to improve and maintain the physical infrastructure of the city.
- 4.d.** Encourage the maintenance, rehabilitation and renovation of existing community facilities in order to maintain a high level of quality service and to prevent the deterioration of facilities.
- 4.e.** Encourage the adaptive reuse of existing buildings as community facilities in recognition of scarce resources.

**Goal Area- PF 5: Vital Economy and Revitalized Neighborhoods**

**Policy PF 5:**

- 5.a.** Stress projects that stimulate the economy by expanding employment opportunities, by strengthening the tax base or by encouraging private investment opportunities.
- 5.b.** Stress the development of capital improvement projects that promote tourism and convention trade.
- 5.c.** Encourage capital improvements in areas in need of neighborhood revitalization.

- 5.d.** Emphasize capital improvement projects which promote the conservation, preservation or revitalization of commercial, industrial, and residential areas of the city.
- 5.e.** Initiate and encourage initiation of programs to improve and maintain the physical environment of the business community.
- 5.f.** Improve opportunities for new businesses and commercial developments to locate in a well-balanced system of competitive centers.
- 5.g.** Recognize that the needs for public safety services may vary with the characteristics of the different neighborhoods and their residents, and provide services to each of the neighborhoods at a level commensurate with the needs of each.

**Goal Area- PF 6: Efficient Capital Facilities Location and Design**

**Policy PF 6:**

- 6.a.** Consider land use compatibility, capital facility needs and financial costs when siting essential public facilities.
- 6.b.** Encourage the acquisition of building sites for public and quasi-public purposes to be of sufficient size to meet future as well as present needs.
- 6.c.** Encourage community facilities to be located and designed to obtain maximum flexibility, utility and multiple use.
- 6.d.** Locate community facilities so as to be convenient, safe, and close to the areas they serve, with access to arterial streets and public transportation.
- 6.e.** Encourage the design of new and the improvement of existing community facility sites and structures in a manner which permits their intended functions to be performed safely, efficiently and effectively and which minimizes ongoing maintenance costs.
- 6.f.** Permit expansion of established community facilities, where appropriate, to allow for their continued usefulness provided the neighborhood and area are not detrimentally affected.
- 6.g.** Stress projects that are energy efficient or enhance energy conservation efforts by the city and its residents.

***C. Short-Term Impacts:***

Adoption of the Waterford General Plan Update will not have any immediate or short-term impact on utilities in the city. Adoption of the Plan, however, will commit the City to continue to develop strategies for the provision of service in the future growth areas of the City.

***D. Long-Term Impacts:***

Long term impacts of growth and development are expected to result in a balance between increased need for utility facilities and programs and increases in facilities and services.



***E. Cumulative Impacts:***

Improvement and expansion of public utility facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.

***F. Secondary Impacts:***

Development of new or expanded public utility service systems, including sewer, water, storm-drain, power, communications system, etc., may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for these facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

***3.17.3 Mitigation Measures***

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Growth and development within the city's proposed urban growth area will result in the need for the expansion of utility services systems. The expansions of these systems will be subject to further site specific environmental analysis as construction is undertaken. The expansion of these utility systems, as necessary to accommodate future growth, will not result in a significant adverse impact at this level of analysis and therefore no mitigation is required or proposed.

***3.17.4 Level of Significance After Mitigation***

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No significant adverse physical impact on utility and service systems are expected to result from the general plan's adoption and implementation.

## *Chapter 4*

# *Significant Environmental Effects Which Cannot Be Avoided if the Proposed Project is Implemented*

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### ***4.1 Introduction***

Section 15126.2 (b) (*Significant Environmental Effects Which Cannot be Avoided if the Proposed Project is Implemented*) states that an EIR must “describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance.” This section goes on to state “where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.”

As a result of the analysis in Chapter 3 of this EIR, it was determined that Significant Environmental Effects in *Air Quality, Agricultural Resources and Transportation & Traffic* will result from project implementation.

### ***4.2 Loss of Agricultural Soils***

As noted in Section 3.3, population growth in Stanislaus County and the San Joaquin Valley will create pressure to convert “prime” and other productive agricultural soils to urban uses and result in cancellation of existing Williamson Act contracts within the Waterford urban area. Due to the historical location of the Valley’s urban centers, any growth or population expansion can be expected to impact productive agricultural land.

The Waterford Vision 2025 General Plan Update reduces the potential adverse effects of regional growth by providing a compact urban setting where growth and development can occur, thus reducing the amount of agricultural land that is consumed by the urbanization process. Secondly, the plan designates growth areas which exhibit characteristics associated with less productive agricultural lands.

While these areas designated for urban growth contain some inclusions of “prime” and other important soils and may be under Williamson Act contract, their conversion to urban uses must be considered as a lesser impact compared to alternative growth and development scenarios in the region.

### ***4.3 Air Quality***

As noted in Section 3.4, the San Joaquin Valley is presently designated as non-attainment for PM<sub>10</sub> and ozone. High background concentrations of carbon monoxide result in “hot spots” where traffic congestion occurs.

Population growth in the region, with resulting increases in traffic and other sources of air pollution, can be expected to aggravate these existing problems. The Waterford Vision

2025 General Plan Update contains policies, programs and standards which promote non-automobile oriented development in the city's expansion areas. These policies, programs and actions are not expected to eliminate the cumulative adverse effects of growth, but can reduce these effects within the limits of the capabilities of the city as a local governmental jurisdiction. No mitigation can be applied by the city, beyond the policies, standards and programs proposed in the general plan, that will further reduce the potential impacts on air quality from growth and development in the San Joaquin Valley.

While expansion of the Waterford urban area will contribute to the overall regional problem of degraded air quality, implementation of neo-traditional development strategies reduces those impacts substantially compared to alternative growth and development scenarios in the region.

#### ***4.4 Transportation and Traffic***

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As noted in Section 3.16, regional growth, combined with growth within the city of Waterford, will aggravate regional traffic problems and contribute to congestion. Future growth in the city, and surrounding region, will result in an increase in traffic volumes on the regional road system. To the maximum extent feasible, the city has proposed development of city street and circulation patterns that will minimize traffic impacts on the Highway 132 and "F" Street corridors.

However, regional traffic volume increases will result in increased traffic volumes along these corridors. The solution to the regional transportation and traffic impact is beyond the abilities of the city, which cannot control regional traffic growth or implement effective mitigation strategies to reduce regional traffic impacts.

Implementation of Neo-Traditional policies and programs will increase use of alternative transportation/pedestrian modes of transportation and is expected to have a positive long-term effect on regional and inter-regional circulation problems. The general plan proposes new roadways to eliminate local congestion and reduce trips along the Highway 132 and "F" Street corridors.

Regional problems, however, will require "regional" solutions with respect to funding and construction of new or improved roadways and intersections. While the City of Waterford is expected to participate in the resolution of these regional circulation problems, solutions will require implementation of regional impact fee systems and a voter approved transportation financing mechanism.

## ***Chapter 5***

# ***Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project Should it be Implemented***

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### ***5.1 Introduction***

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In accordance with Section 15126.2 (c), an EIR must analyze the extent to which the proposed project's primary and secondary effects will commit nonrenewable resources to uses that future generations will probably be unable to reverse. Such irreversible commitments of resources must be evaluated to assure that such current consumption is justified. CEQA uses the example of constructing a road that provides public access to an area which has been historically inaccessible. Other examples might be the conversion of prime ag-land to non-agricultural uses or destruction of some natural habitat. This section of CEQA states that irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

### ***5.2 Consumption of Natural Resources***

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Implementation of the general plan would result in the short-term commitment of non-renewable and/or slowly renewable energy resources, human resources, and natural resources such as lumber and other forest products, sand and gravel, asphalt, steel, copper, lead, other metals, and water due to construction activities.

As the community develops, both residential and non-residential development would require further commitment of energy resources in the form of natural gas and electricity generated by coal, hydro-electrical power and nuclear energy. Increased motor vehicular travel in the project area would be accompanied by increased consumption of petroleum products. An increased commitment of social services and public maintenance services, e.g., waste disposal and treatment, would also be required.

Consumption of these resources is inevitable as a result of population growth. city policies and use of modern construction techniques, coupled with normal market forces, are expected to minimize the adverse impacts of resource consumption. The Waterford Vision 2025 General Plan Update contains policies and programs, such as sustainable development and utilization of “green” technologies, that are expected to substantially reduce per-capita consumption of non-renewable resources.

### ***5.3 Conversion of Agricultural Land to Urban Uses***

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Development of currently vacant agricultural lands is an irreversible environmental effect as it is not likely that land would revert to its original condition. In turn, developing currently undeveloped agricultural land tends to have irreversible environmental effect on some types of biological resources.

The general plan calls for the intensification and development of land in the project area. The proposed general plan includes policies to protect designated open space areas and concentrations of “prime” agricultural soils, as well as the preservation of endangered species. However, the general plan is premised on development of large areas of currently undeveloped land to the north and east of the existing city where these resources are less likely to be concentrated.

Portions of the Urban Expansion Area contain deposits of non-renewable natural "prime" soil resources. Expansion of the city's urban area will result in canceling some Williamson Act contracts and converting some “prime” agricultural soils to non-agricultural uses. These resources will be irreversibly lost as a result of development. This loss, however, is not substantial and is expected to have only a minor effect on the area's agricultural economic base.

#### ***5.4 Secondary Impacts***

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There are no secondary resource impacts expected to result from growth and development in the city. Plans or policies will not result in the extension of infrastructure (sewer, water or roads) into areas not previously committed to urban development. Secondary impacts of urban development on adjacent agricultural land has been identified as a potential impact and is addressed in this EIR.

The overall Waterford Vision 2025 General Plan Update philosophy is to provide policy and guidance that would accommodate various future conditions such as increased energy costs, reduced potable water resources and even global climate change.

## ***Chapter 6***

# ***Growth-Inducing Impacts of the Proposed Project***

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### ***6.1 Introduction & Scope***

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Section 15126(d) of the CEQA Guidelines sets forth the EIR standards for a discussion of growth inducing impacts. Like other potential environmental impacts, growth inducing impacts of a project can be either in direct or indirect form.

Section 15126 (d) states that an EIR must discuss “the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.”

The discussion must address:

- Ways the project may remove obstacles to population growth.
- How increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.
- A discussion on the characteristics of the project which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

### ***6.2 Project Growth Inducing Potential***

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The growth discussion also needs to address projects that would remove obstacles to growth. These types of projects would typically be considered to have “indirect” growth inducing impacts.

#### ***City of Waterford General Plan As***

##### ***Response To Growth Expectations:***

Central to any environmental analysis on growth impacts is the primary assumptions regarding why growth is expected to occur. Is the project the cause or the result of growth? As noted in Chapter 2 (Project Description) this Program EIR relies on the following assumptions regarding growth:

1. California’s population will continue to grow into the middle of the current century and beyond do to its strategic location on the Pacific Coast and access to growing Asian economies.
2. The central San Joaquin Valley will attract growth because of its proximity to the strong economic growth that will occur in the San Francisco Bay Area and relatively low cost land and housing opportunities compared with the Bay Area.
3. These long-term trends are reflected in the State Department of Finance’s population forecasts showing Stanislaus County with a 2005 population estimated to be at

approximately 522,300 people and growing to nearly one-million people by the year 2040.

4. Conservatively, future population growth in Waterford will approach 14,500 by the year 2025 and 18,600 by the year 2040.
5. High growth estimates for the city indicate potential population growth for Waterford approaching 19,000 by 2025 and 28,200 by 2040.
6. In order to accommodate efficient levels of service delivery, regional urban development (residential, commercial and industrial) will be focused within the city's growth area and not in the unincorporated areas surrounding the city.
7. The average household size in the city will remain at approximately 3.5 people per dwelling unit.
8. Agriculture and recreation will remain the primary economic focus driving the local economy through the year 2040.

In general, these eight assumptions are based on the theory that public land use policy decisions can affect the distribution of population and employment opportunities. Conversely, local public land use policy decisions cannot significantly alter growth rates at a regional level.

Growth in California is expected to be fueled by its strategic position relative to the growing trade areas around the Pacific Rim and its leadership in technological innovation (computers, telecommunications and bio-science). This economic growth, coupled with other state-wide growth inducing influences indicate a continuation of historic population and economic growth trends in California for the foreseeable future.

The central Valley region is seen by many as the focus for much of the growth expected to occur in California during the next fifty years. This growth pressure is expected to result from the lack of available urban expansion areas in the coastal urban centers of the state. Growth and development in the San Joaquin Valley will, in turn, affect the growth rates of communities such as the city of Waterford.

In this context, the City of Waterford Vision 2025 General Plan Update is a response to expected future growth trends. In the event that these trends prove to be wrong and growth in California or the central Valley does not occur at the expected rate, the plan will not need to be implemented. Development aspects of the plan, which have a potential to affect the physical environment, are driven by growth demand.

***City of Waterford General Plan's***

***Indirect Growth Inducing Potential:***

The City of Waterford Vision 2025 General Plan Update will not have any direct growth inducing impacts. The project is proposed in response to anticipated population and economic growth needs in the region.

The City of Waterford Vision 2025 General Plan Update indirectly induces growth, however, by:

- Sewer, water, drainage, roadway, wastewater treatment, power and communications infrastructure planning.
- Public facility planning for schools, public buildings, public safety facilities, libraries, etc.
- Introducing mechanisms for financing community facility and infrastructure improvement and or expansion.
- Policies, goals and standards that address potential environmental constraints.
- Development planning for a community that is attractive to home buyers seeking a clean and attractive community environment.

In these respects, the general plan removes obstacles to future population and job growth and is thereby growth inducing.

### ***6.3 Project Growth Impacts***

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Specific secondary or indirect growth impacts expected to result from the adoption and implementation of the City of Waterford Vision 2025 Plan Update include:

- *Aesthetics:* Implementation of aesthetic standards and policies will increase costs of development and could have an impact on how investment is made in the community.
- *Agricultural Land:* Plan policies that will conserve prime agricultural soils and promote agricultural productivity could have adverse secondary environmental effects. The limiting of land available for housing and related services will result in increasing housing costs which could, in turn, increase the cost of labor for surrounding agricultural employers.
- *Air Quality:* As a result of the region being in non-conformance with state and national air quality standards, both state and federal enforcement penalties could impose hardships on the region's population and economic development.
- *Biological Resources:* Habitat mitigation programs could reduce potential development area available for new housing, employment and service centers in the city and region which could promote "sprawl" types of development patterns and increase public services costs through the reduction of a "compact urban form."
- *Cultural Resources:* As a result of regulatory standards, it is expected that there will be an increase in the cost of construction and development on sites that contain cultural resources. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city.



- *Geology and Soils:* As a result of construction policies and regulatory standards, it is expected that there will be an increase in the cost of construction and development on sites that contain certain types of soils. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city.
- *Hazards and Hazardous Materials:* As a result of regulatory standards for hazardous materials, it is expected that there will be an increase in the cost of construction and development on sites that contain hazardous materials or for businesses that use, store or handle such materials. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city.
- *Hydrology and Water Quality:* As a result of regulatory standards, it is expected that there will be an increase in the cost of construction and development. These costs will be uniform within the region and the state and are not expected to be significant in most cases or create any substantial adverse economic impact that would hamper normal growth and development within the city. Another secondary impact of general plan implementation is that with the conversion of agricultural land to urban uses, there will be a transfer of allocated agricultural water to urban uses as well. This long-term shift in water use will be irreversible.
- *Land Use Planning:* With the implementation of the land use policies and standards of the general plan, there will be differentials in land value that will reflect market functions of supply and demand that will change over time. Early demand for more “residential” land will reduce the value of lands not designated as residential however, as residential development occurs, there will be an increase in commercial and industrial land demand.
- *Mineral Resources:* As a result of land use incompatibilities, restrictions will be placed on aggregate mining in the Waterford area. This could result in an increase in future production costs of building materials. Increased costs of building materials will result in an increase cost of new development in the future.
- *Noise:* Noise thresholds that have been affirmed in the plan are presently in place and have been applied to new development and construction in the city for many years. The increased costs associated with these regulations are standard throughout the region and do not have any impact on the cost of doing business in the city of Waterford in relation to other communities of similar size and circumstances.
- *Population & Housing:* With increased growth in population and housing, there will be a change in the “small town” character of the community.
- *Public Services:* Development of new public service facilities may result in the creation of impacts that are not contemplated in this environmental impact report.

New construction programs for public facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

- *Recreation:* Development of new recreation facilities, including parks and playgrounds, may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for parklands and recreation facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.
- *Transportation & Traffic:* Development of new roadways and transportation facilities may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for roadways and transportation facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.
- *Public Facilities & Services:* Development of new public facilities, including schools, government service buildings, public protection facilities, etc., may result in the creation of impacts that are not contemplated in this Environmental Impact Report. New construction or land acquisition programs for these facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.
- *Public Utilities:* Development of new or expanded public utility service systems, including sewer, water, storm-drain, power, communications system, etc., may result in the creation of impacts that are not contemplated in this environmental impact report. New construction or land acquisition programs for these facilities will be subject to specific environmental analysis and any identified impacts would be mitigated in accordance with the law.

All of these issues, to a greater or lesser extent, are subject to analysis in Chapter 3 of this EIR. Some of the effects of growth can be viewed as “good” and others as “bad”. Some of the effects would occur without adoption and implementation of the City of Waterford Vision 2025 General Plan Update; they would occur, however, to a greater or lesser degree. The CEQA Guidelines state:

*“It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment”*

#### **6.4 Conclusions**

The adoption and implementation of the City of Waterford Vision 2025 General Plan Update will have some indirect growth inducing impacts on the local and regional environment. Growth will have both beneficial and harmful impacts on the physical environment of the city and the region. The overall benefits derived from having a plan for the orderly development of the community outweighs potential harmful effects that may be indirectly induced from plan adoption and implementation.

## Chapter 7

# *The Mitigation Measures Proposed to Minimize the Significant Effects*

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### **7.1 Introduction and Overview**

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Section 15126.4 of the CEQA Guidelines identifies five key elements with respect to mitigation.

1. An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.
2. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.
3. Mitigation measures are not required for effects which are not found to be significant.
4. Mitigation measures must be consistent with all applicable constitutional requirements, including the following:
  - (A) There must be an essential nexus (i.e. connection) between the mitigation measure and a legitimate governmental interest. *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987); and
  - (B) The mitigation measure must be "roughly proportional" to the impacts of the project. *Dolan v. city of Tigard*, 512 U.S. 374 (1994). Where the mitigation measure is an *ad hoc* exaction, it must be "roughly proportional" to the impacts of the project. *Ehrlich v. city of Culver city* (1996) 12 Cal.4th 854.
5. If the lead agency determines that a mitigation measure cannot be legally imposed, the measure need not be proposed or analyzed. Instead, the EIR may simply reference that fact and briefly explain the reasons underlying the lead agency's determination.

### **7.2 Project Mitigation**

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As required by law, the development of the general plan and the preparation of the environmental analysis for the plan occurred in a coordinated fashion to assure that environmental aspects of the project were addressed in planning policy.

Impacts to Agricultural Resources, Air Quality and Traffic and Circulation were determined to be significant. All feasible means of reducing the impacts of the project on

these three areas of environmental concern have been implemented in the form of policy and standards in the general plan. There are no other feasible mitigation measures, beyond these plan policies and standards, that can be applied to reduce the expected project impacts to these areas of environmental concern.

Other areas of environmental concern, including but not limited to Aesthetics, Biological Resources, Geology and Soils, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Public Utility and Service Systems, etc., have policies and standards within the plan that guide growth and development in a manner as to reduce potential impacts to a level that will not result in significant environmental impacts. Individual project impacts are discussed in Chapter 3 and summarized on Table 1.2 in Chapter 1 (Summary).

## *Chapter 8*

# *Alternatives to the Proposed Project*

### ***8.1 Introduction***

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126(d) of the CEQA Guidelines, is to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.”

Section 15126 (a) of the CEQA Guidelines states the primary intent of the alternatives evaluation in an EIR, as follows:

“(a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.”

In summary, the CEQA Guidelines state that “the discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.”

An EIR must describe a range of reasonable alternatives to the proposed project (or to its location) that would feasibly attain most of the basic objectives of the project. The feasibility of an alternative may be determined based on a variety of factors including, but not limited to, site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control (CEQA Guidelines Section 15126(d)(5)(A)).

The main body of this EIR contains an evaluation of the environmental impacts associated with implementation of the Waterford Vision 2025 General Plan Update. In this chapter, the comparative merits of alternative growth management strategies are

discussed and, where appropriate, evaluated and compared with the impacts of the implementation of the *Waterford Vision 2025 General Plan*.

### ***8.2 Project Impacts Deemed Significant:***

The main body of this EIR contains an evaluation of the environmental impacts associated with implementation of the Waterford Vision 2025 General Plan Update. In this chapter, the comparative merits of alternative growth management strategies are discussed and, where appropriate, evaluated and compared with the impacts of the implementation of the general plan.

#### ***Agricultural Impacts***

- The Waterford General Plan will result in development review policies and standards that will encourage the conversion of land designated as “Prime” “Unique” or of “Statewide Importance” to non-agricultural uses.
- Implementation of the general plan will result in the need to cancel Williamson Act contracts so the urban development can be approved.
- Expansion of the urban population in Waterford will create potential conflicts between urban uses and some types of agricultural uses and management practices. Dairies, chicken and poultry raising are types of agricultural uses that conflict with urban uses due to the creation of odor. At the same time, the spraying of pesticides, herbicides and the use of other agricultural chemicals can create health hazards for human populations. In general, these impacts do not eliminate agricultural use but modify the types of agricultural uses and management practices that can be pursued on a piece of property adjacent to an urban area.

#### ***Air Quality Impacts***

- General plan policies and standards will not result in the violation of any air quality standard but will contribute to an existing air quality violation with respect to ozone and PM<sub>10</sub> in the central San Joaquin Valley. Projects undertaken in conformance with the general plan policies and standards will be evaluated on their own merits with respect to air quality conformity.
- The San Joaquin Valley is designated as non-attainment under applicable federal and state standards for ozone and PM<sub>10</sub> emissions. Long-term growth throughout the Valley, including planned growth in the city of Waterford, will contribute to a cumulative net increase in this air pollution.

#### ***Transportation and Traffic Impacts***

- Expansion of the urban population in Waterford will contribute to the cumulative increase in regional traffic congestion which is substantial in relation to the existing traffic load and capacity regional circulation system.

### ***8.3 Project Objectives:***

As stated in Chapter 2 Section 2.4, the purpose of the general plan update is to revise the previous general plan. A major purpose of the revision is to take into consideration the changes in conditions and circumstances that have occurred since the plan was last

updated. Furthermore, the update is intended to express policies in a manner and format that will simplify their interpretation, administration, and application to individual development decisions. The update also assures that the city's general plan reflects the community's aspirations as reflected in the series of "Visioning" sessions held with residents of Waterford.

The broad purpose of the general plan is to express policies that will guide decisions on future growth, development, and conservation of resources through the year 2025, in a manner consistent with the goals and quality of life desired by the city's residents.

Throughout the planning process, alternatives were evaluated by several factors including:

1. Livability,
2. Services & Facility Provision,
3. Cost,
4. Environmental Constraints, and
5. Efficiency (urban services, circulation, etc.)

#### ***8.4 Background:***

The Alternative selection process, for the Waterford Vision 2025 General Plan Update began in the early phases of plan development and examined not only the ultimate "planning area" limits and defined the "2025 Urban Limits" or Sphere of Influence", the process also addressed concepts of urban design approaches, and alternatives to utility and service system expansion to serve future growth areas.

In the process of preparing the general plan update, the city was confronted with various alternative approaches to growth and urban expansion. Over the course of several years, the city council and planning commission looked at various designs for expanding its urban limits and as a result, it was determined that the city should look to an area that is generally bounded by the Tuolumne River to the south, Dry Creek to the north, Hazeldean Road to the east and Blossom Road to the west. This "planning area" was used to define the ultimate limits of the "study area" for purposes of The Waterford Vision 2025 General Plan Update.

This early urban expansion concept defined approaches to land use and circulation. The approach included designation of large tracts of land that could be developed as "rural ranchette" types of home-sites with a density of one residence to an acre or more. The circulation system contemplated a new east-west arterial along El Pomar Road with connecting (north-south) links to Highway 132 at either end of the planning area.

As part of the Waterford Vision 2025 General Plan Update, this plan, along with the existing Waterford General Plan were reviewed in light of existing law and policy. Most importantly, the city researched the requirements and policies of the Stanislaus County Local Agency Formation Commission (LAFCo) to determine the feasible limits for

defining it's Sphere of Influence (SOI) that could reasonably be expected to be approved by LAFCo.

Beyond the process of defining the potential urban SOI limits of the city over the next 20 years, significant time and effort were invested in defining the planning approach that should be pursued for directing future urban growth. The "New Urbanist" approach incorporating neo-traditional and "green" design principles was accepted as the best fit for the circumstances of Waterford over traditional designs that tended to produce "sprawl" types of development in other Valley communities in the region.

A third major alternative consideration in the development of the Waterford Vision 2025 General Plan Update was the expansion of the city's utility systems to serve these expansion areas. Subjects such as approaches to waste water treatment, waste water collection systems, water and storm water were exhaustively studied as part of the process. The result was that four utility master plans were developed that examined various "alternative" approaches to infrastructure design that reflected the ultimate "urban" expansion plan and incorporated the neo-traditional and "green" policies of the plan.

As a result, various alternatives were exhaustively studied during the development of the plan. The details of these alternative evaluations are part of the public record of the plan (spanning many years) and are also contained in several printed reports.

As a requirement of CEQA, the results of this exhaustive "alternative" evaluation will be evaluated against a defined set of major alternative approaches to the Waterford Vision 2025 General Plan Update. Some of these previous alternative evaluations will be incorporated into this analysis.

### ***8.5 Project Alternatives:***

Consistent with the objectives of the City of Waterford's General Plan, several project alternatives appear feasible in light of the requirements of state law. Each alternative is specific to the identified "significant impact" on **"Agricultural Resources, "Air Quality" or "Transportation and Traffic"**.

In accordance with the requirements of CEQA, two general alternative approaches to the Waterford Vision 2025 General Plan update seem to address the major issues of CEQA Guidelines Section 15126. These two areas are 1, *General Plan Approach*, which addresses the "traditional" and "neo-traditional" approaches to land use planning, and, 2. "Urban Expansion" alternatives that look at growth to the "east and northeast" vs. "westerly" growth.

Additionally, the "No Project Alternative" or the "do nothing" alternative is required by CEQA. As a general plan is required by state law, it is not a legal option for the city to not have a general plan and the city must consider maintaining or updating the plan as a matter of law. In a practical since, the city could determine that the general plan not consider expanding it's present urban limits. In essence, the "No Project Alternative" is a



no urban expansion alternative. Growth would still be permitted within the existing urban limits of the city in this alternative so this is not to be confused as a “No Growth” alternative which would also be impractical under state law and would conflict with existing property rights.

#### ***8.5.1 General Plan “Approach” Alternatives***

Under the general plan “Approach” Alternatives the “Traditional” and the “Neo-Traditional” options. This plan, while providing a mechanism for pursuing “traditional” planning approaches, provides strong policy incentives to encourage use of “Neo-Traditional” planning and design techniques. These two alternatives are discussed in greater detail below.

***A. Traditional Planning Approach:*** In this alternative, it is assumed that traditional development patterns continue. This type of development can be characterized as “auto-oriented”.

This type of development is represented by the growth areas of the city. Most of these areas are within the area bounded by the Modesto Irrigation District Main Canal. Auto-oriented development styles tend to be larger in scale than neo-traditional development designs and require extensive parking areas, large roadways and roadway networks and do not easily accommodate pedestrian and non-automotive forms of transportation.

Commercial on-street parking was seen as an impediment to traffic flow and as a result, large parking areas and building setbacks dominate the urban commercial street views. With this type of development, pedestrian access is typically difficult. To visualize this difference, an examination of most older “downtown” areas of the city compared to a modern shopping mall is helpful.

In the past, the mixture of single-family to multi-family housing in the city has been driven largely by the market demand created by the socio-economic character of the city’s residents and the housing market. Single family housing tends to be on relatively large lots and multi-family housing tends to be sited on arterial or collector streets, adjacent to shopping centers. Multi-family housing is typically treated as a buffer separating single-family development from intrusive commercial uses.

Like services and commercial centers, employment centers tend to be located away from residential areas which results in the need for additional commute trips requiring use of the family automobile.

#### ***1. Agricultural Resources.***

Traditional development would typically have a lower density (6-units to the acre) in single-family dominated residential neighborhoods. This type of development approach consumes agricultural land at the rate of six residential units per acre or accommodates approximately 21 people per acre.

## ***2. Air Quality***

Traditional development does not encourage, but rather discourages, mixed use neighborhoods and is automobile dependent for basic trips to services, work and consumer shopping. As a result, traditional development styles requires at least ten automobile trips per household and therefore generate high levels of air pollution, particularly in rural small communities with longer commute distances to goods, services and employment.

## ***3. Transportation and Traffic***

The standard of vehicle trips per day per household in “traditional” residential neighborhoods is ten trips. A “trip” is defined as a vehicle trip either originating or arriving at a residence. Increased development results in increased vehicle travel within residential neighborhoods and in areas surrounding residential neighborhoods. Increases in vehicle travel result in the need for expanded roadways, larger parking lots and related infrastructure to support automobile use.

***B. Neo-Traditional Planning Approach:*** This alternative reflects the policy standards of a more pedestrian friendly and transit friendly type of urban development pattern. Typical elements of this type of development will generally include the following guidelines:

- **Guideline No. 1** New developments within each future growth area shall be made up of one or more “neighborhoods.” Each neighborhood shall follow a transect of land uses from an urban neighborhood center to a parkway edge.
- **Guideline No. 2** A neighborhood center shall be defined by and shall be required to have the following urban characteristics:
  - a) A civic or public open space such as a plaza or green shall be located in the neighborhood center.
  - b) Retail space, office space, and residential uses shall be located in the neighborhood center, often in multi-use buildings.
  - c) Except for schools, institutional uses should also be located in the neighborhood center.
  - d) Streets in the neighborhood center shall be thoroughly interconnected with the surrounding street system to provide easy, multiple accesses for cars, pedestrians, and bicycles.
  - e) All buildings in the neighborhood center shall be permitted to satisfy their parking requirements with spaces located both on-and off-street within 1/8 mile of the building. All off-street parking shall be placed behind or under buildings in order to present a continuous building façade to the public street.
- **Guideline No. 3** Each neighborhood or group of neighborhoods within each future growth area shall provide for a mix of housing, workplaces, retail, and institutional uses including schools, and shall include land designated for public parks/recreation.

- **Guideline No. 4** Development within each future growth area shall be consistent with the following policies:
  - a) The outer edge of development in each neighborhood shall not be more than a 20-minute walk from the neighborhood center.
  - b) The average housing densities within blocks shall decrease from neighborhood center to neighborhood edge (transect).

The neighborhood edge shall be bordered either by a natural corridor, a landscaped buffer adjacent to an arterial, major collector or higher order street, or the edge of an adjacent neighborhood across a pedestrian-friendly boulevard or parkway; sound walls should not be allowed.

- **Guideline No. 5** In order to preserve prime agricultural land, and to achieve the other benefits of compact urban design, new neighborhoods shall be required to achieve a minimum average density of 9 units per net residential developable acre, exclusive of open space, parks, schools, streets and other non-developable areas.
- **Guideline No. 6** New residential developments shall not achieve the required average density of 9 units per net residential developable acre through an exclusive mix of low-density and high-density units. At least 40% of the housing units in new residential developments shall be of housing types that fall within the range of 7-14 units per net residential developable acre.
- **Guideline No. 7** Residential developers shall be encouraged to design new residential developments with as many discreet lot sizes and housing types as is feasible, in the interest of offering a greater number of choices across the broad range of housing prices. Several lot sizes and housing types within each block shall be encouraged to provide variety and texture within the block, as well as throughout each neighborhood. Clustering a large group of any single housing type in several large blocks shall be avoided.
- **Guideline No. 8** The street network within each future growth area shall have the following characteristics:
  - a) Traffic shall be channeled from major arterials around groups of neighborhoods on boulevards which shall have a maximum of two travel lanes and a bike lane in each direction with a large 20' to 30' landscaped median. The center medians shall allow access to every neighborhood street. Large lot homes with large front setbacks and garage access only from rear alleys shall face onto the boulevards.
  - b) Parkways may be used to channel traffic from major arterials and boulevards to, but not through, neighborhood commercial centers. Each parkway shall have one narrow travel lane and a bike lane in each direction, with a large 20' to 30' landscaped median. The center medians shall allow access to every neighborhood street. Homes with garage access only from rear alleys shall

face onto the parkways. The front setbacks shall progressively decrease as residential areas approach the neighborhood center.

- c) Each neighborhood shall be connected in as many locations as possible to the parkways and boulevards to disburse and calm the traffic as it leaves and enters the residential neighborhood. Collector street systems shall not be allowed.
- d) Open spaces, schools, parks and other natural amenities shall be fronted by streets or public spaces, and shall not be privatized behind backyards.
- e) “Gated” single-family home communities shall not be permitted.
- f) Individual blocks should generally average less than 600 feet in length and less than 1800 feet in perimeter, measured at the right of way line.
- g) Cul-de-sacs shall be avoided unless natural terrain conditions demand them.
- h) The street network shall be thoroughly interconnected.
- i) Streets in the neighborhood commercial center shall have parking on both sides. Head in and angle parking is preferred in the commercial center with a maximum of two 12-foot travel lanes.
- j) In order to slow traffic, standard residential streets shall be no more than 32 feet wide with parking on both sides in the last block before the street connects to a parkway or boulevard, and shall be reduced in stages to 28 feet or less with parking on both sides once away from the parkways and boulevards. In addition, the corner curb radius shall be no more than 10 feet where the neighborhood streets connect to the parkways, and boulevards and shall not exceed 4 feet elsewhere within the neighborhoods.
- k) Rear alleys shall be strongly encouraged but it is recognized that it is not always practical. In no case, however, is the garage to be permitted in the front of the dwelling unit (facing the street). Rear alleys must be paved and landscaped and must be maintained by a landscape and lighting district, or comparable, permanent financing mechanism.

### ***1. Agricultural Resources.***

Neo-Traditional development approaches would typically have a higher density (9 or more units to the acre) in residential neighborhoods that accommodate various types of single and multi-family residential types. This type of development approach consumes less agricultural land than “traditional” development, often reducing land demands by 1/3 versus traditional development.

### ***2. Air Quality***

Neo-Traditional development encourages mixed use neighborhoods with a diversity of housing types in pedestrian and alternative transportation (bicycle, etc.) friendly neighborhoods. The neo-traditional is much less automobile dependent for basic trips to services, work and consumer shopping. As a result, neo-traditional development styles can be designed with traffic loads less than the “traditional” neighborhood design rate of at least ten automobile trips per household and therefore generate lower levels of air pollution, particularly in rural small communities with longer commute distances to goods, services and employment.

### ***3. Transportation and Traffic***

The standard of vehicle trips per day per household in “neo-traditional” residential neighborhoods is less than ten trips. However, because of the higher density, comparable traditional and neo-traditional neighborhoods may generate similar rates of traffic generation per acre. A “trip” is defined as a vehicle trip either originating or arriving at a residence. Increased development results in increased vehicle travel within residential neighborhoods and in areas surrounding residential neighborhoods. Increases in vehicle travel result in the need for expanded roadways, larger parking lots and related infrastructure to support automobile use. In neo-traditional neighborhoods, the need for many vehicle trips is eliminated through the provision for mixed-uses and the availability of non-vehicular modes of transportation.

#### ***8.5.2 General Plan Urban Expansion Alternative***

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As established in early planning efforts within the city, growth to the north of Dry Creek and south of the Tuolumne River were considered generally impractical given the physical barriers that these two water courses represented. As a result, the direction of urban growth could either be generally to the east or to the west or concentric (growth in both directions).

In defining the direction of growth for the city, Chapter 2 (Urban Expansion) addressed the alternative approaches to growth from a transportation and circulation standpoint as follows:

- I) *“The Western (Linear) City”*-- Scenario I proposed growth to the west along Highway 132 toward the City of Modesto. This scenario scored well in terms of near term accessibility and access to downtown from Highway 132, but would have posed problems with respect to aggravating future traffic congestion on Highway 132 and, more importantly, created serious encroachment into the very productive “prime” agricultural land west of the city.
- II) *“The Eastern (Linear) City”*-- Scenario II showed considerable growth to the east along Highway 132 towards the recreation areas bordering the Tuolumne River and to the east (the Modesto Reservoir). This scenario had a high-degree of livability. However, it would have impacted Highway 132 and focused regional traffic impacts on the Highway 132/Oakdale-Waterford Highway intersection.
- III) *“The Southern City”*-- Scenario III projected major southerly growth beyond the Tuolumne River toward the unincorporated community of Hickman. This scenario had easy access to the Oakdale-Waterford Highway (Hickman Road), and its north-south connectivity between the Oakdale-Merced urban areas to the north and south. It would also have direct access to Highway 132 and the Modesto urban area. This

expansion would have encroached on the community of Hickman and would have been constrained, with respect to future connectivity to the existing community area, by the Tuolumne River. There would have been substantial costs for expansion of street, water, and sewer infrastructure across the river corridor.

- IV) *“The Northern City”*-- Scenario IV envisioned growth to the north and northeast towards the Modesto Reservoir. This scenario seeks to avoid “prime” agricultural lands to the west and allows for the efficient and relatively inexpensive provision of public services. This growth scenario also maximized utilization of local and regional street and road infrastructure.

An additional consideration for defining the direction of urban expansion was the impact on agricultural resources. Waterford is surrounded by productive agricultural land. The most valuable farmland (rated “prime” or better) tended to be found to the east of the city, however, the majority of the Williamson Act contract land in the region tended to be toward the east of the city.

***A. Proposed Urban Expansion Model:*** As a result, it was determined that the direction of growth should incorporate some elements of “concentric” growth, meaning an expansion of the urban limits in a semi-circle around the existing city Limits, with a bulk of the expansion area to be located in the northeastern portion of the city.

***1. Agricultural Resources***

The proposed urban expansion model will result in converting a few acres of “prime” agricultural soils in an area that is predominately under Williamson Act Contract to non-agricultural uses.

***2. Air Quality***

The proposed urban expansion model will have only a limited impact on regional air quality as overall growth will have similar characteristics.

***3. Transportation and Traffic***

The proposed urban expansion model supports development of El Pomar Avenue as an alternative east-west arterial thereby reducing local traffic along the Highway 132.

***B. Eastern or Western Expansion Model:*** These models would have resulted in expansion of the city either east or west (or both in the concentric model) along the Highway 132 corridor.

***1. Agricultural Resources***

The proposed east-west-concentric urban expansion approach will result in converting predominantly “prime” agricultural soils to the west or predominantly land under Williamson Act Contract to the east to non-agricultural uses. The

“western” expansion approach will result in increased consumption of “prime” agricultural land as opposed to an “eastern” expansion model exclusively.

### ***2. Air Quality***

The proposed east-west-concentric urban expansion approach will have only a limited impact on regional air quality as overall growth will have similar characteristics.

### ***3. Transportation and Traffic***

The proposed east-west-concentric urban expansion approach supports development that will encourage a linear city model concentrating growth and development along the Highway 132 corridor and, without major expansion of this segment, will result in significant traffic congestion.

#### ***8.5.3 General Plan “No Project” Alternative***

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***No Project:*** This alternative assumes that the city’s general plan is updated but expansion of the city’s growth areas does not occur. State law requires that each city and county in California adopt a general plan. If the City of Waterford chose not to adopt a revised general plan, it would continue to rely on the existing general plan and growth and development would be guided by existing policy within the existing city limits.

As a result, future population growth which exceeds the capacity of the existing growth area capacity is directed to outlying communities (Hickman, Hughson, Empire, etc.,) or onto farmlands under Stanislaus County jurisdiction around the city’s periphery.

This alternative assumes that services and employment would tend to continue the trend of locating in the city’s commercial and industrial districts due to access to transportation and public services coupled with availability of sufficient land to accommodate these uses.

As a result, model parameters for trip length would be extended for residential uses or densities and would increase in the city in response to population growth pressures. Of course, the average speed for service and employment trips would increase as would peak hour congestion.

### ***1. Agricultural Resources***

Maintaining the existing city boundaries will limit consumption of agricultural land for “urban” uses. However, growth pressures in the region may encourage the conversion of large ranch holdings into small “ranchette” types of development and reduce overall agricultural productivity in the region.

### ***2. Air Quality***

Increased growth within the existing city limits would have a similar impact to other types of growth scenarios except to the degree that traffic volumes are increased on local and regional roadways.

***3. Transportation and Traffic***

Increased growth within the existing city limits would eliminate alternative circulation potential north of the MID Main Canal. With limited potential for expansion of local streets and the state highway, higher levels congestion can be expected.

***8.6 The Environmentally Superior Alternative(s)***

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The proposed Waterford Vision 2025 General Plan Update, which encourages “neo-traditional” development practices and directs growth away from “prime” agricultural land while reducing east-west traffic impacts on Highway 132, is the environmentally superior alternative.



## *Chapter 9*

# *Cumulative Impacts*

### **9.1 Introduction**

Section 15130 (a) of the CEQA Guidelines states that “an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(c). Where a lead agency is examining a project with an incremental effect that is not ‘cumulatively considerable,’ a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.”

As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.

When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.

The discussion of cumulative impacts is to reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

The following elements are necessary for an adequate discussion of significant cumulative impacts:

1. A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency
2. Lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.

3. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and
4. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

### ***9.2 Geographic Scope***

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With respect to cumulative impacts, the geographic scope of potential cumulative impacts is somewhat defined by the type of impact being analyzed. With respect to air quality, the geographic scope is the entire Great Valley ranging from Redding to the north to Bakersfield to the south.

Agricultural impacts typically are more locally defined with respect to economic impacts, usually the immediate county where the project may be located. Crop production has the potential to impact a larger economic area, however, due to the location of processing facilities.

Transportation and Circulation impacts are defined with respect to the travel patterns of the residents of Waterford, recreation visitors to the region, and the overall travel patterns of people residing within a few miles of the city of Waterford. Travel patterns involve trips for service and business, work commute, recreation, trips to access school or other public (government) services.

The scope of impacts for other types of environmental concern areas, such as aesthetics, geology, water quality and hydrology, public facilities and services, land use, etc., tend to be more local; typically involving the local community (Waterford) and its immediate surrounding area.

It should be noted, however, that some aspects of environmental effects may reach beyond the immediate setting. Water quality and wildlife impacts can have a broader regional implication, but these types of regional impacts are typically highly regulated (Regional Water Quality Control Board, State Department of Water Resources, U. S. Fish and Wildlife Service and the California Department of Fish and Game) and therefore tend to be less of an environmental concern.

### ***9.3 Area-Wide and Regional Conditions***

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#### ***Physical Description***

The San Joaquin Valley is long (300 miles) and relatively narrow (100 miles), and occupies an area between two of the largest metropolitan areas in California and the United States. The Valley contains the main transportation facilities linking the San Francisco Bay Area to the north and the Los Angeles/San Bernardino metropolitan area in the south. These facilities include major highways, (Interstate 5 and State Route 99), the Southern Pacific and Santa Fe railroads and numerous oil and natural gas pipelines, telecommunications facilities, airports and even a deep water port in the city of Stockton.

The east to west transportation facilities are less numerous, but are critical to the inter-regional transportation network of the West Coast and the western United States. Numerous highways and rail lines cross the valley, including state routes 59, 120, 132, and 140 and Interstate 5, which is located on the west side of the San Joaquin Valley.

### ***Population Growth***

Population growth, as discussed in Section 3.3 (Land Use and Planning) of this document concludes that the population of Stanislaus County is expected to approach one million people by the year 2040. The city of Waterford is forecasted to have a population in the range of 19,000 to 28,100 during the same time period.

### ***Employment***

The employment characteristics of Waterford and the county of Stanislaus are discussed in Section 3.3 (Land Use and Planning) of this document. This section also discusses the overall economic setting of the city and the region.

## ***9.4 Summary of Expected Effects***

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Within Chapter 3, the cumulative impacts of individual aspects of environmental consequences of the project are discussed. A summary of these discussions is contained in Chapter 2 (Summary). For purposes of analysis, the three “significant” cumulative impacts resulting from this project are in the focus area of Agricultural Resources, Air Quality and Transportation and Traffic.

### ***Cumulative Agricultural Impacts:***

As previously stated in Section 3.3 (Agriculture) the American Farmland Trust has conducted studies that evaluate the potential population growth impacts in the central Valley through the year 2040. It is expected that population in this region will grow with an addition of 1.8 million people during this time period. As a result, a projected 360,000 acres of land, most of which will be farmland, will be converted to urban uses.

In Stanislaus County, between 2000 and 2002, a total net loss of 3,391 acres of “prime” farmland was converted to urban use and other non agricultural uses. (2002 Farmland Conversion Report) This conversion total represents approximately 1.3% of the 260,730 total “prime” farmland acres in Stanislaus County in 2002.

With increased urbanization in the Valley, other impacts are affecting agricultural productivity. Increased population results in increased urban water use that reduces supplies that would otherwise be available for agricultural use. Increased demand for water increases water costs which, in turn, result in marginal agricultural becoming impractical.

Increased growth also means more roadways to accommodate heavier traffic loads. Regional roadways are typically constructed on low cost agricultural lands. Increased traffic also results in increased air emissions. Ozone damages plants by reducing their synthesis of chlorophyll, causing the plant’s carbohydrate levels to fall and curtailing new

tissue production. In severe exposures, plants suffer leaf burn, a condition that damages appearance and reduces the marketability of many crops.

***Cumulative Air Quality Impacts:***

As previously stated in Section 3.4 (Air Quality) development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic congestion region-wide. This impact will contribute to the regional air quality problems. Emissions from other sources will also contribute to the regional air pollution.

***Cumulative Transportation & Traffic Impacts:***

As previously stated in Section 3.16 (Transportation and Traffic) development impacts resulting from this growth, both in the city and the region, will result in increased transportation and traffic impacts region-wide. At present, resources are not available to resolve these impacts.

***Other Cumulative Impacts:***

- ***Aesthetics:*** The cumulative effects of the project are that the existing pattern of urban development will be expanded within the city's urban planning area or Sphere of Influence over time. It is expected that through the application of sound planning principles, as reflected in the city's development regulations, the overall urban aesthetic environment will be improved and enhanced with new development over the planning horizon. Plan implementation could provide new visual and physical access to the Tuolumne River and Dry Creek corridors.
- ***Biological Resources:*** Urbanization will result in the conversion of farmland to urban uses which will, in turn, change the nature of wildlife habitat in the area. These changes will have little impact on overall wildlife populations in the region given the extensive area surrounding the city that is maintained as farmland and the extensive wetland preserves that exist to the east of the city.
- ***Cultural Resources:*** Modifications to historic buildings, that may occur as the city grows and develops, will be part of the changing urban landscape and will also result in aesthetic changes in the city. These changes, based on the policies and guidance provided in the general plan, may be seen as an improvement over the existing visual and cultural setting.
- ***Geology and Soils:*** Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. These changes will have little impact on the overall capacity of the geology and soils of the area and these soils and the underlying geologic structure of the region will support the type of development that is likely to occur.
- ***Hazards and Hazardous Materials:*** Urbanization will result in the conversion of farmland to urban uses which will, in turn, place new development on land that was previously used for farming. Agricultural chemicals, including fertilizer, pesticides and herbicides will no longer be applied in the manner that they are normally used in a commercial agricultural operation. New development, along

with the use of household chemicals, and landscape maintenance, will replace traditional agricultural activities.

- ***Hydrology and Water Quality:*** The city of Waterford's annual needs for water at annexation build-out is projected, to support a population of 17,672, would be approximately 3,300-acre feet per year (afy). As part of the State's Urban Water Management Planning Act, the city is required to prepare an Urban Water Management Plan (UWMP). The plan evaluated future domestic water needs and identified increasing urban water demand in response to projected population growth. In order to meet future water needs in the service area, new wells and groundwater recharge facilities will need to be constructed. In addition, the MID's Modesto Regional Water Treatment Plant will need to be expanded and a new water treatment facility developed.

The wastewater treatment plant expansion plan, when complete, will provide capacity to support a planned population of approximately 19,000, producing an estimated wastewater flow of 1.4 million gallons per day. Beyond this point, the city will need to consider a new wastewater treatment plant or the possibility of joining a regional system such as the City of Turlock. This option would require construction of a new pipeline to a regional connection point, possibly up to 20 miles, to connect to a regional system. The City has adopted a Storm Drain Master Plan and has begun to provide new and upgraded drainage facilities.

- ***Land Use and Planning:*** The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term urban pattern for this northwestern portion of the county. The urban pattern established with these two planning documents will impact agricultural productivity for the region, regional circulation and transportation needs for the future and the overall economic health of the area. Proper planning and sound public policy, such as reflected in the general plan process mandated by state law, will assure that all physical adverse environmental impacts to land use are considered in the final decision making process.
- ***Mineral Resources:*** While the sand and gravel resources within the Waterford urban area are limited, the removal of this limited resource will add to the future scarcity of sand and gravel for the construction industry or result in increased cost of these resources because of higher transportation costs.
- ***Noise:*** Expansion of urban noise levels into areas presently used for agricultural purposes, combined with new light sources, increased traffic and the related population impacts of growth and development will change the character of the environment along the city's present urban fringe. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.
- ***Population and Housing:*** The Waterford General Plan, in conjunction with the Stanislaus County General Plan, will establish the long-term pattern for the distribution of population and housing opportunities for this northwestern portion of the county. The population and residential pattern of development established with these two planning documents will impact agricultural productivity for the

region, regional circulation and transportation needs for the future, and the overall economic health of the area. Proper planning and sound public policy, such as reflected in the general plan process mandated by state law, will assure that all physical adverse environmental impacts to population and housing are considered in the final decision making process.

- **Public Services:** Growth in the public sector is expected to mirror growth and development in the private sector of the city. Development impacts resulting from this growth, as it relates to physical impacts on the environment, are accommodated within the context of this document and normal development/construction permit review provisions of the city

Cumulative issues with respect to public services fall in the areas of supporting infrastructure necessary to operate and maintain public facilities and provide public services. In the case of schools, circulation and transportation needs of school facilities along with public utilities such as water, sewer and storm drain system.

These issues can be further complicated by the inability of a school district to develop new school facilities in a timely manner to respond to increased school enrollment. To address the overcrowded conditions, schools may need to transport students to other schools within the district. The required private vehicle transportation of students to address the overcrowded conditions of schools, the need to transport these students to other schools within the district, and the added required private and public vehicles of the teachers and employees of the district that would be required as a result of the students generated by growth are possible secondary (cumulative) impacts resulting from lack of adequate school facilities.

Another cumulative aspect of the inability of public service providers to develop adequate facilities is the “social” and “economic” costs on service populations. As an example, overcrowded schools have the potential to create social and psychological impacts on students leading to behavioral problems requiring law and school enforcement on and off campus.

- **Recreation:** Growth in recreation facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.
- **Public Utility and Service Systems:** Improvement and expansion of public utility facilities, along with other segments of the public service sector in the city, will result in the need for other related city support facilities such as administrative offices, increased public protection services and maintenance services. Some of these increased service needs may result in a need for additional public facilities. These impacts, however, are not likely to result in a significant adverse physical impact on the environment.

### ***9.5 Avoidance of Cumulative Effects***

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As noted in Chapter 3, and elsewhere in this document, there are no practical means available to the City of Waterford to avoid the cumulative effects of the project on Agricultural Resources, Air Quality and Transportation and Traffic. Policies and programs contained in the general plan have been developed to lessen cumulative impacts to the degree feasible.

### ***9.6 Future Use of This Analysis***

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No further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or area wide cumulative impacts of the proposed project have already been adequately addressed, as defined in section 15152 (e), in a certified EIR for that plan.

If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact, as provided in Section 15183(j).

## Chapter 10

# Mitigation Monitoring

### 10.1 Introduction

Under Government Code Section 21081.6 state and local agencies are required to establish a reporting or monitoring program for approved projects requiring CEQA review. Government Code Section 21081.6 calls for a reporting or monitoring program *"designed to ensure compliance during project implementation."*

Local agencies are given broad latitude in developing programs to meet the variety of projects and circumstances affecting their jurisdictions. The following Mitigation Monitoring Program proposal has been developed in accordance with guidance published by the Governor's Office of Planning and Research and is intended to serve as a guide to the City of Waterford in complying with the provisions of Government Code Section 21081.6 on the Waterford Vision 2025 General Plan Update project.

While the Waterford General Plan does not contain any specific mitigation measures, future development projects proposed in accordance with the general plan may be required to implement appropriate mitigation strategies as identified in the general plan policies and standards or otherwise identified in the normal CEQA review process.

In most cases, development conditions and mitigation measures can be monitored through the city's construction plan approval/plan check process. When the approved project plans and specifications, with mitigation measures, are submitted to the city planning department, a copy of the monitoring checklist will be attached to the submittal. The checklist (Form A) will be filled out upon project approval with mitigation measures required as part of the project approval. As project plans and specifications are checked, compliance with each mitigation measure can be reviewed.

In instances where mitigation requires on-going monitoring, the Mitigation Measure Monitoring Checklist (Form B) will be used until monitoring is no longer needed. The planning department will be required to file periodic reports on how the implementation of various mitigation measures is progressing or is being maintained. Department staff may be required to conduct periodic inspections to assure compliance. In some instances, outside agencies and/or consultants may be required to conduct necessary periodic inspections as part of the mitigation monitoring program.

The following is suggested as the mitigation monitoring program worksheet for the Waterford Vision 2025 General Plan Update.



**The City of Waterford  
General Plan Update Environmental Impact Report**

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**Waterford Vision 2025 General Plan Update  
Environmental Mitigation Checklist Form A**

**Project Name:** \_\_\_\_\_ **File Number:** \_\_\_\_\_  
**Approval Date:** \_\_\_\_\_ **EIR** \_\_\_\_\_ **Conditional Neg. Dec.** \_\_\_\_\_

The following environmental mitigation measures were incorporated into the Conditions of Approval for this project in order to mitigate identified environmental impacts to a level of insignificance. A completed and signed checklist for each mitigation measure indicates that this mitigation measure has been complied with and implemented, and fulfills the City of Waterford's Mitigation Monitoring requirements with respect to Assembly Bill 3180 (Public Resources Code Section 21081.6)

Mitigation Measure	Type	Monitoring Dept.	Shown on Plans	Verified Implementation	Remarks
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

(Add additional Measures as Necessary)

***Explanation of Headings:***

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Type:	Project, ongoing, cumulative.
Monitoring Dept.	Department or Agency responsible for monitoring a particular mitigation measure.
Shown on Plans:	When mitigation measure is shown on plans, this column will be initialed and dated.
Verified Implementation:	When a mitigation measure has been implemented, this column will be initialed and dated.
Remarks:	Area for describing status of ongoing mitigation measure, or for other information.

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## ***Chapter 11***

### ***References & Resources***

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#### ***11.1 Introduction***

Section 15129 of the CEQA Guidelines states that “the EIR shall identify all federal, state, or local agencies, other organizations, and private individuals consulted in preparing the draft EIR, and the persons, firm, or agency preparing the draft EIR, by contract or other authorization.”

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## Appendix “A”

# City of Waterford General Plan Update Program EIR Notice of Preparation Comments