5.0 LAND USE AND PLANNING

This Chapter of the Environmental Impact Report (EIR) is intended to provide the reader with information regarding current land use and zoning designations and land use policies in the Town of Windsor (Town) for the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). This discussion differs from other discussions in that plan consistencies are addressed as opposed to environmental impacts and mitigation measures. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines states that “(t)he EIR shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans.” This section also looks at whether redevelopment activities consistent with the Town of Windsor General Plan (General Plan) would encourage land uses and densities that would be incompatible with adjacent land uses. Physical environmental impacts that could result from the proposed project or from inconsistencies with adopted policies designed to reduce physical effects are discussed in Chapter 6.0, Environmental Analysis, in this document.

EXISTING CONDITIONS

The Windsor community is located in the northern end of a valley, the Santa Rosa Plain, between two ridges of the Pacific Coast Range Mountains. The Town is visually defined by hills and ridges to the east, west, and north, and its many oak trees. The Town is located in Sonoma County (County), California. The Windsor Redevelopment Project (Existing Project Area) currently encompasses 468 acres within the Town center.

The Added Area consists of two noncontiguous areas totaling approximately 202 acres. One area being considered includes approximately 167 acres along Old Redwood Highway between Windsor River Road and the northern Town boundary and adjoins a portion of the Existing Project Area. The second area includes approximately 35 acres at the northwest intersection of Old Redwood Highway and Shiloh Road at the southern boundary of the Town.

EXISTING LAND USES

Existing land uses are identified in Figure 5.0-1. The Existing Project Area currently encompasses the Town commercial center and older residential areas of Windsor with support commercial. Existing uses include the Town Center mixed-use and park, office, older rural residential, apartments, single family residential subdivisions, restaurants, retail, gas stations, fuel storage, recreation, Windsor Creek Elementary School, the abandoned Windsor Mill site, auto wrecking, auto repair, churches, and open space/floodplain, all intermixed with vacant parcels.

The Added Area consists of two noncontiguous areas totaling approximately 202 acres. The Old Redwood Highway (ORH) area (166.6+ acres) includes a mix of older, generally low-density, or vacant residential, commercial, and industrial uses located along the west side of U.S. 101. Existing uses include a mostly vacant trailer park, self-storage, auto repair and parts, truck storage and repair, equipment rental, hardware store, construction materials storage and sales, warehouses, a mortuary, retail, apartments, and rural residential, intermixed with small vacant parcels.
5.0 LAND USE AND PLANNING

5.0-1 EXISTING LAND USES

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Prepared 12/10/2009 by
The Ervin Consulting Group

1 in = 0.5 miles

Miles

Figure 5.0-1
EXISTING LAND USES

Source: The Ervin Consulting Group, 2009
Data: Visual Survey & Sonoma County Assessor, 2009

EXISTING LAND USES

Commercial & Industrial
Retail
Office
Mixed Use
Industrial

Other
Agriculture
Open Space
Public/Quasi-Public
Parking/ROW
Vacant Land

Residential
Rural Residential
Single Family Residential
Condominiums
Mobile Home Park
Multi-Family Residential

Proposed Added Area
Parcels

Existing Redevelopment Area
Town Boundary
The Shiloh Road area (35.4+ acres) is predominately large lot rural residential homes, but also includes an industrial park, junkyard/used appliance sales, dog board and care, a church, and a small commercial center.

**Town of Windsor General Plan Existing Land Uses**

The General Plan sets basic land use policies for the Town. As such, it establishes the basic public policy structure for future land use and designates development patterns for the Existing and Added Project Areas (Amended Project Area), amongst other policy issues, as further discussed below. The Existing Project Area is predominantly designated Surrounding Residential/Low-Medium Residential (5-8 dwelling units (du) per acre) and Town Center/Mixed Use, with a small amount of Retail Commercial, General Business, Public Quasi-Public, and Medium to High Density Residential. The Added Area designations reflect the Shiloh Road Vision Plan and transitional uses for the ORH area. The Shiloh Road area includes Boulevard Mixed Use, Compact Residential, Village Residential/Medium Density Residential (5-8 du/acre), High Density Residential, and Light Industrial. The ORH area includes Mobile Home Park (although this is now vacant and the subject of the Bell Village development proposal), Gateway Commercial, and Service Commercial, with some Medium-High Density, Village Residential, and Public/Quasi-Public. The Existing General Plan land use designations for the Amended Project Area are identified in Figure 5.0-2.

By law, at the time of adoption or amendment of the Redevelopment Plan, it must be consistent with the Town’s General Plan. The Redevelopment Plan further provides that land uses permitted in the Amended Project Area shall continue to conform to the Town’s General Plan as it may be amended from time to time following adoption of the Redevelopment Plan. As such, the Town’s General Plan is incorporated into the Redevelopment Plan by reference and guides land use policy within the Amended Project Area.

**Town of Windsor Zoning Ordinance Existing Land Uses**

The Windsor Zoning Map (2005) generally reflects the General Plan land use designations. The primary differences include a Medium Density Residential zoning over the abandoned mobile home park in the ORH area, a Community Commercial zoning for General Business and Retail Commercial. Existing zoning designations for the Amended Project Area are identified in Figure 5.0-3.

**APPLICABLE LAND USE PLANS AND POLICIES**

The proposed Amended Project Area is subject to the General Plan and Municipal Code. In addition, the Town has accepted several strategies for implementing the General Plan. The land use designations and policies of each of these documents are discussed below.
FIGURE 5.0-2
GENERAL PLAN LAND USES

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Prepared 12/9/2009 by
The Ervin Consulting Group

Source: The Ervin Consulting Group, 2009
5.0 LAND USE AND PLANNING

FIGURE 5.0-3

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Source: The Ervin Consulting Group, 2009

FIGURE 5.0-3
ZONING
TOWN OF WINDSOR GENERAL PLAN

The General Plan is a twenty-year policy guide for physical, economic, and environmental growth and renewal of the Town. The General Plan is comprised of objectives, policies, programs, and actions that are based on an assessment of current and future needs and available resources. The document is the Town's principal tool for evaluating public and private projects and municipal service improvements. The current General Plan was adopted in March 13, 1996, was revised July 20, 2005, and is a comprehensive document that replaces the use of the County General Plan.

The Town has combined elements so that the General Plan was adopted as a single general plan document arranged by primary issue topics within which each element is addressed. The format addresses all the mandatory general plan elements, but is organized to eliminate redundancies where possible.

The General Plan is comprised of goals, objectives, policies, and implementation measures that are based on an assessment of current and future needs and available resources. The Visions Statement for Windsor in 2015 is:

“It is Windsor's overall goal to foster and promote an image of the Town as a:

- Place with a strong sense of community
- Friendly, family-oriented community
- Community with an active, involved citizenry
- Vital and growing community with small town character”

The General Plan is the basis for a variety of regulatory mechanisms and administrative procedures. California planning law requires consistency between the General Plan and a community’s implementation programs. Thus, there is a strong connection between a community’s policies and its regulatory system, with the General Plan serving as an overall “blueprint.”

The goals and policies contained in the General Plan are directly associated with specific implementation measures including the Town’s zoning and subdivision regulations, the Capital Improvements Program, and development review processes. Implementation strategies are provided for each policy area. Implementation measures related to specific policies include a variety of monitoring efforts. This monitoring activity will help the Town measure the success of the General Plan and its implementation. Redevelopment is specifically called out as a part of the General Plan Implementation Program.

TOWN OF WINDSOR ZONING ORDINANCE

Title 17 of the Town of Windsor Municipal Code addresses zoning in the Town.1 Zoning is a local jurisdictional land use control that regulates the type and nature of development. Zoning ordinances regulate specific development characteristics, such as building height, bulk, use, lot coverage, and parking requirements. The Zoning Ordinance carries out the policies of the Windsor General Plan by classifying and regulating the uses of land and

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1 Municipal Code, Windsor, California, Codified through Ordinance No. 2009-251, adopted March 18, 2009 (Supplement No. 20).
structures within the Town, consistent with the General Plan. The purposes of the Zoning Ordinance are to:

A. Provide standards and guidelines for the orderly growth and development of the Town that will assist in protecting the rural characteristics and community identity of Windsor;

B. Conserve and protect the Town’s natural beauty and setting, including the rolling hills and oak trees, scenic vistas, and historic and environmental resources;

C. Create a comprehensive and stable pattern of land uses upon which to plan transportation, water supply, sewerage and other public facilities and utilities;

D. Minimize automobile congestion by promoting pedestrian oriented development, safe and effective traffic circulation, and adequate off-street parking facilities; and

E. Ensure compatibility between residential and commercial development and land uses.

SHILOH ROAD VILLAGE VISION PLAN

The Shiloh Road Village Vision Plan is a conceptual plan for mixed-use development on Shiloh Road, east of Highway 101. The plan encompasses a 79-acre area with the purpose of establishing a traditional neighborhood at the southern boundary of Windsor and incorporates New Urbanist principles, such as narrow grid pattern streets, a transportation system oriented around bike and pedestrian access, a diversity of housing types and land uses, a neighborhood commercial center with apartments above first-story retail establishments, and the integration of public space into the neighborhood fabric. The Shiloh Road Vision Plan contains twenty-one Guiding Principles and nine Design Guidelines to carry out the vision, and the land uses were adopted into the General Plan and Zoning in 2005. The Shiloh Road portion of the Added Area is encompassed within this Plan. The Shiloh Road Vision Plan is shown on Figure 5.0-4.

OLD REDWOOD HIGHWAY VISION PLAN

The ORH Vision Plan provides a set of seven guiding principles and a conceptual land use plan to guide future redevelopment within the ORH area north of Windsor River Road and the former trailer park. While consistent with the underlying zoning, the plan promotes high quality, high-density mixed-use urban design. The ORH Conceptual Land Use Plan is shown on Figure 5.0-5.

TOWN OF WINDSOR DOWNTOWN PLAN

The Town of Windsor Downtown Plan (revised July 20, 2005, Figure 5.0-6) guides and facilitates the continuing development and conservation of Downtown Windsor. The Downtown Plan assesses potential development in the Downtown, with particular consideration of market forces and urban design. The portion of the Existing Project Area located between the railroad right-of-way (ROW) and U.S. 101 is encompassed within the Downtown Plan boundaries. This area includes Windsor’s historic Old Town, civic center, library, the Old Windsor Mill site, and the recently redeveloped Town Center. The Downtown Plan identifies vacant or underutilized opportunity sites for redevelopment, and establishes the overall design direction adopted for the Downtown.
FIGURE 5.0-4
SHILOH ROAD VISION PLAN

Source: Town of Windsor, 2009 (modified)
5.0  LAND USE AND PLANNING

Source: Town of Windsor, 2009 (modified)

FIGURE 5.0-5
OLD REDWOOD HIGHWAY VISION PLAN

FIGURE 5.0-9
PROPOSED FIFTH AMENDMENT DRAFT EIR
5.0 LAND USE AND PLANNING

FIGURE 5.0-6
TOWN OF WINDSOR DOWNTOWN PLAN

Source: Town of Windsor, 2009 (modified)
SUMMARY OF LAND USE CONSISTENCY AND COMPATIBILITY FINDINGS

FINDING 5.0-1 CONSISTENCY WITH ADOPTED PLANS AND POLICIES

Town of Windsor General Plan

Any public or private sector development that may be undertaken, encouraged, or accommodated by redevelopment activities would be subject to the General Plan and other applicable Town plans, policies, and ordinances, as well as the Redevelopment Agency of the Town of Windsor (Agency) and Amended Redevelopment Plan requirements. Infrastructure projects would support the orderly development of the Town in a manner consistent with adopted land use designation.

In addition, the Amendment’s requirement that at least 20% of tax increment revenues be used for the preservation, rehabilitation, and/or construction of very low-, low- and moderate-income housing would help to further the Town’s Housing Element goals of providing affordable housing for all income groups. The goals of the Amendment to eliminate and prevent the spread of blight and deterioration in the Amended Project Area are complementary to the Town’s goals to maintain and improve the quality and character of residential neighborhoods.

Redevelopment is an integral part of the General Plan Implementation Program. Redevelopment is used to “meet a wide range of General Plan goals and polices, including increases in economic development, Old Town revitalization, and the provision of adequate services and facilities. The Town’s Redevelopment projects are designed to revitalize Windsor’s historical downtown so that it may become an efficient and attractive center for commercial, tourist, and offices activity and to strengthen existing residential neighborhoods and expand the stock of affordable housing within the Project Area.”

The Redevelopment Plan and the five year Implementation Plan must be consistent with and serve to implement this General Plan. Therefore, the Amendment is consistent with the General Plan policies and serves as an implementation mechanism for the General Plan.

Town of Windsor Zoning Ordinance

The Amendment does not propose new land uses or zoning changes, and any public improvements that would occur as a result of the Amendment must be consistent with the Zoning Ordinance. At present, the intensity of land uses in the Amended Project Area is below the maximum intensity allowed under the existing Zoning Ordinance. Private investment over the life of the Amendment is expected to result in an intensification of existing uses and in the creation of different types of land uses on parcels where the interim uses do not conform to the current Zoning Ordinance designations. This shift to conforming uses would be consistent with the Zoning Ordinance.
Shiloh Road Village Vision Plan

The current land uses in the Shiloh Road Village area are considered transitional, and generally inconsistent with the adopted land use designations, and the area suffers barriers to development from inadequate infrastructure for designated uses. The Amendment could provide funding assistance for infrastructure improvements and development assistance for this portion of the Added Area, consistent with adopted land use designations. Therefore, the Amendment would be consistent with the goals and objectives of the Village Plan.

Old Redwood Highway Vision Plan

The current land uses in the ORH Vision Plan area are considered transitional, and generally inconsistent with the adopted land use designations, and the area suffers barriers to development from inadequate infrastructure for designated uses. The Amendment could provide funding assistance for infrastructure improvements and development assistance for this portion of the Added Area, consistent with adopted land use designations. Therefore, the Amendment would be consistent with the goals and objectives of the ORH Vision Plan.

Town of Windsor Downtown Plan

While a large amount of redevelopment has been completed within the Existing Project Area, there are remaining land uses in the Downtown Plan area that are inconsistent with the adopted land use designations, and portions of the area, such as the Old Mill site, suffer barriers to development from inadequate infrastructure for designated uses. The Amendment would extend funding assistance for infrastructure improvements and development assistance within the Downtown Plan area, consistent with adopted land use designations. Therefore, the Amendment would be consistent with the goals and objectives of the Downtown Plan.

FINDING 5.0-2 COMPATIBILITY OF LAND USES

Town of Windsor General Plan

Any public or private sector development that may be undertaken, encouraged, or accommodated by redevelopment activities would be subject to the General Plan and other applicable Town plans, policies, and ordinances, as well as the Amended Redevelopment Plan and Redevelopment Agency requirements.

Implementation of the Amendment would somewhat alter and intensify development of the Amended Project Area. Private investment over the life of the Amendment is expected to result in an intensification of existing uses and in the creation of different types of land uses on parcels where the interim uses do not conform to the current General Plan and zoning designations. This shift to conforming uses would result in land uses compatible with adjacent uses and the policies of the Town.

Town of Windsor Zoning Ordinance

The Amendment does not propose new land uses or zoning changes, and any public improvements that would occur as a result of the Amendment must be consistent with the
Zoning Ordinance. At present, the intensity of land uses in the Amended Project Area is well below the maximum intensity allowed under the existing Zoning Ordinance, and many existing land uses do not meet current development standards. Private investment over the life of the Amendment is expected to result in an intensification of existing uses and in the creation of different types of land uses on parcels where the interim uses do not conform to the current Zoning Ordinance designations. This shift to conforming uses would result in land uses compatible with adjacent uses, and improvement in properties up to current codes and standards.

**Shiloh Road Village Vision Plan**

The Amendment does not propose new land uses or zoning changes, and any public improvements that would occur as a result of the Amendment must be consistent with the Village Plan for this area. At present, the area retains older land uses that are non-conforming uses. Private investment over the life of the Amendment is expected to result in replacement of the existing uses with new development consistent with the Village Plan. Planned residential and commercial uses engendered by the Amendment would be compatible with existing residential and commercial uses, as the area develops over time. This shift to conforming uses would result in land uses that are compatible with adjacent uses.

**Old Redwood Highway Vision Plan**

The Amendment does not propose new land uses or zoning changes, and any public improvements that would occur as a result of the Amendment must be consistent with the ORH Vision Plan for this area. At present, the area retains older non-conforming uses which currently place residential uses next to industrial and heavy commercial uses. Private investment over the life of the Amendment is expected to result in replacement of the existing non-conforming uses with new development consistent with the Vision Plan. Planned residential and commercial uses engendered by the Amendment would be generally compatible with existing residential and commercial uses, as the area develops over time, and existing nuisance issues – such as noise from interim uses would be mitigated on a project-by-project basis, as appropriate to the site conditions. This shift to conforming uses that meet current code requirements would result in land uses that are generally compatible with adjacent uses.

**Town of Windsor Downtown Plan**

The Amendment does not propose new land uses or zoning changes, and any public improvements that would occur as a result of the Amendment must be consistent with the Downtown Plan for this area. At present, the area retains older, non-conforming land uses. Private investment over the life of the Amendment is expected to result in replacement of the existing uses with new development consistent with the Downtown Plan. Planned residential and commercial uses engendered by the Amendment would be compatible with existing residential and commercial uses, as the area develops over time. This shift to conforming uses would result in land uses that are compatible with adjacent uses.
6.0

INTRODUCTION TO THE ANALYSIS

Windsor Redevelopment Project Proposed Fifth Amendment
6.0 INTRODUCTION TO THE ANALYSIS

This chapter of the Environmental Impact Report (EIR) contains individual subchapters that describe the potential physical and environmental impacts of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). Each subchapter describes the existing setting and background information necessary to help the reader understand the conditions that would cause an impact to occur. In addition, each subchapter includes a section that describes how an impact is determined to be significant or less than significant. Finally, the individual subchapters recommend mitigation measures to reduce significant impacts.

APPROACH TO THE ANALYSIS

This EIR analyzes the potential environmental impacts of the proposed Amendment. The Amendment would add territory to the Existing Project Area, thus the application of redevelopment tools in this Added Area needs to be assessed. In addition, the Amendment would extend redevelopment in the Existing Project Area for an additional 10 years beyond that originally anticipated. Therefore, this EIR analyzes the potential impacts of redevelopment implementation in both the Existing Project Area and the Added Area (Amended Project Area) over the amended life of the Windsor Redevelopment Plan (Redevelopment Plan).

SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

The Initial Study (Appendix A) prepared for the Amendment identified several areas that required further analysis. These areas are discussed in Subchapters 6.1 through 6.10 of this EIR and include:

- Air Quality
- Biological Resources
- Cultural and Historic Resources
- Geology/Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Public Services and Utilities
- Transportation and Circulation

Several issues are addressed in the Initial Study but are not discussed in this EIR. These include:

- Aesthetics
- Agricultural Resources
- Mineral Resources
- Population and Housing
- Recreation

These issues were eliminated from detailed analysis in the EIR for one of three reasons: 1) existing regulations will ensure that any impacts will be reduced to a less-than-significant level, 2) the issue is a social or economic issue and not a physical environmental impact, or 3) the issue does not apply to the project evaluated in this Draft EIR. The Initial Study documents the justification for considering issues potentially significant or less-than-
significant. Please refer to the Initial Study for a discussion of why these issues were identified as less-than-significant and are therefore not evaluated further in this EIR.

**FORMAT OF THE ENVIRONMENTAL ANALYSIS**

Each analysis Subchapter is organized to discuss the environmental setting, regulatory setting, project impact, method of analysis, standards of significance, and mitigation measures, as discussed below. References are consolidated in Chapter 8.

**EXISTING CONDITIONS**

According to Section 15125 of the California Environmental Quality Act (CEQA) Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of the proposed project to provide the baseline condition against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the Notice of Preparation (NOP) is published, although CEQA Guidelines recognize that the date for establishing an environmental baseline cannot be rigid. The NOP for the Windsor Fifth Amendment EIR was published on August 27, 2009. Because physical environmental conditions may vary over a range of time periods, the use of environmental baselines that differ from the date of the NOP is reasonable and appropriate when doing so results in a more accurate or conservative environmental analysis.

For analytical purposes, impacts associated with implementation of the proposed project are derived from two fundamental components of the existing baseline environmental setting – existing conditions at the time the NOP was published and conditions that are anticipated to exist at build-out of the Town of Windsor General Plan (General Plan). It is appropriate to evaluate project-level impacts against the conditions that exist when the NOP was published for most issue areas. For issue areas either directly or indirectly related to infrastructure, project-level impacts are more conservatively analyzed against future baseline conditions that consider General Plan and approved growth, because improvements (e.g., roadway widenings, intersection improvements, wastewater distribution and conveyance, solid waste disposal, water supply, electricity, and natural gas supplies) must consider and accommodate ultimate demand.

**REGULATORY SETTING**

The Regulatory Setting provides a summary of federal, state, and local regulations, plans, policies, and laws that are relevant to each issue area.

**IMPACTS AND MITIGATION MEASURES**

This section is further divided into the following subsections, as described below.

*Method of Analysis*

This subsection identifies the methodology used in that subchapter to analyze potential environmental impacts.
Standards of Significance

The CEQA Guidelines define a 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 and aesthetic significance” (CEQA Guidelines Section 15382). Definitions of significance vary with the physical conditions affected and the setting in which the change occurs. CEQA Guidelines set forth physical impacts that trigger the requirement to make mandatory findings of significance (CEQA Guidelines, Section 15091). This EIR identifies specific standards of significance for all environmental issues.

Where explicit quantification of significance is identified, such as a violation of an ambient air quality standard, this quantity is used to assess the level of significance of a particular impact in this EIR. For less easily quantifiable impacts, events or occurrences that would be regarded as significant or potentially significant were identified. For example, growth-inducing impacts would be identified as significant if the project results in a level, rate, or character of growth that (among other criteria) exceeds the capacity of existing infrastructure and services. Where the substantial effect of an impact is not identified in the CEQA Guidelines, the criteria for evaluating the significance of potential impacts were determined and identified in this document.

Project-Specific Impacts and Mitigation Measures

This section describes the potential environmental impacts of the Amendment and, based upon the thresholds of significance, concludes whether the project specific environmental impacts would be considered significant, potentially significant, or less than significant. Each impact is summarized in an impact statement, followed by a more detailed discussion of the potential impacts and the significance of each impact before mitigation.

Each impact is provided as a summary block prior to the impact discussion to allow for easy reference. The impact number consists of the subchapter of the EIR in which that impact is identified followed by a hyphen to indicate the number of the impact in that sub-chapter. For example, Impact 6.1-1 is the first impact identified in Subchapter 6.1.

The analysis of environmental impacts considers both the construction and operational phases associated with implementation of the proposed project. As required by Section 15126.2(a) of the CEQA Guidelines, direct, indirect, short-term, long-term, on-site, and/or off-site impacts are addressed, as appropriate, for the environmental issue area being analyzed.

A significant effect is defined by Section 15382 of the CEQA Guidelines 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. An economic or social change by itself shall not be considered a significant effect on the environment… [but] may be considered in determining whether the physical change is significant.”
The Draft EIR uses the following terms to describe the level of significance of impacts identified during the course of the environmental analysis:

- **Significant and Unavoidable Impact (SU)**
  Impact that exceeds the defined threshold(s) of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures.

- **Significant Impact (S)**
  Impact that exceeds the defined threshold(s) of significance. For purposes of this document, pre-mitigation impacts that exceed the defined threshold(s) of significance are referred to as significant; however, when the impacts cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures, these impacts are referred to as significant and unavoidable.

- **Potentially Significant Impact (PS)**
  Impact that potentially exceeds the defined threshold(s) of significance. For purposes of this document, pre-mitigation impacts that potentially exceed the defined threshold(s) of significance are referred to as potentially significant; however, when the impacts cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures, these impacts are referred to as significant and unavoidable.

- **Less-Than-Significant Impact (LS)**
  Impact that does not exceed the defined threshold(s) of significance. This term is used for impacts for which mitigation measure(s) identified can reduce a pre-mitigation impact to a less-than-significant level. In many instances, the actions that are necessary to reduce a project impact are already required by local, state, or federal law and whereas compliance with the law is assumed, the impact is therefore considered less than significant.

- **No Impact (NI)**
  The project would result in no impact.

**Cumulative Impacts and Mitigation Measures**

This section describes the potential cumulatively significant environmental impacts of the Amendment in combination with other proposed projects and future development in the vicinity. As described for project specific impacts above, potential impacts are measured against thresholds of significance, and the analysis concludes whether the cumulative environmental impacts would be considered significant, potentially significant, or less than significant. Each cumulative impact is summarized in an impact statement, followed by a more detailed discussion of the potential impacts and the significance of each impact before mitigation.

**Mitigation Measures**

This section is provided for both project specific and cumulative impacts, and provides feasible mitigation measures that could reduce the severity of the identified impact. In addition to feasible mitigation measures, it is assumed that the project applicant would also continue to comply with all applicable federal, state, and local laws and regulations, and these laws and regulations are considered to be part of the project description. In many
instances, the actions that are necessary to reduce a project impact are already required by federal, state, or local law. Similarly, established design guidelines or other requirements that the Town regularly recognizes and follows for development projects are also considered part of the project description. In this EIR, such requirements are identified and considered in the impact assessment prior to the identification of additional mitigation measures that would reduce the level of significance of impacts.

**Significance after Mitigation**

Following the description of applicable policies and regulations, as well as mitigation measures for any significant impact, each impact section concludes with a statement regarding whether or not the impact – following implementation of the mitigation measure(s) and/or the continuation of existing policies and regulations – would be reduced to a less-than-significant level or would remain significant and unavoidable.
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CHAPTER 6
ENVIRONMENTAL ANALYSIS

6.1 AIR QUALITY

Windsor Redevelopment Project Proposed Fifth Amendment
6.1 AIR QUALITY

This Subchapter of the Environmental Impact Report (EIR) describes the air quality setting of the Existing Project Area and Added Area (Amended Project Area) that is the subject of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). This section addresses the impacts of the proposed Amendment on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations, including the type and quantity of emissions that would be generated by construction and operation or redevelopment engendered activities. Updated information on existing conditions in the proposed Amended Project Area was collected from the Bay Area Air Quality Management District (BAAQMD), the Northern Sonoma County Air Pollution Control District (NSCAPCD), and the California Air Resources Board (CARB). Although many greenhouse gas (GHG) emissions are regulated by the CARB, climate change is discussed in Subchapter 6.3 (Climate Change).

There were no comments received on the Notice of Preparation (NOP) regarding air quality issues.

ENVIRONMENTAL SETTING

CLIMATE AND METEOROLOGY

Climate and air quality are determined by the geographic location, topography, and urbanization of an area. This section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Amended Project Area.

The Amended Project Area is located within the northwest trending Santa Rosa Plain to the east of the Russian River Valley. The Town of Windsor (Town) is separated from the Russian River Valley by foothills that reach elevations of just over 200 feet above mean sea level (MSL). To the east, the valley is flanked by the Maacama Mountain Range. The Amended Project Area lies at the north end of the Valley, primarily within the Bay Area Air Basin (BAAB), although the 18 northernmost parcels of the Added Area are within the North Coast Air Basin (NCAB). The BAAB encompasses a nine-county region including all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin and Napa counties, and the southern portions of Solano and Sonoma counties.

Climate

The Amended Project Area’s climate is Mediterranean in character, with mild, rainy winter weather from November through March and warm to hot, dry weather from May through September. The climate is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region.

There are no long-term official rainfall records for Windsor, but the City of Healdsburg has average maximum and minimum winter temperatures of approximately 58°F and 38°F,
respectively, while average summer maximum and minimum temperatures are approximately 89°F and 53°F, respectively. Precipitation in Healdsburg averages approximately 42 inches per year (WRCC, 2008). The annual average rainfall measured in Santa Rosa (7 miles south of Windsor) is 29.88 inches. The average rainfall in Windsor is estimated at 34 inches in the lower reaches of the watershed to 45 inches in the higher elevations. The mean temperature is 57.9°F and the mean maximum and mean minimum temperatures are 72.1°F and 43.5°F, respectively.¹

Locally, weather moves through the Esteros Lowlands, which lie south of Bodega Bay and north of Petaluma. It then passes over the Petaluma and Santa Rosa valleys, spreading north and south until it reaches the Mayacmas Mountain Range. This basic weather pattern prevails throughout the area, although it is slightly modified in the Windsor area by wind patterns that follow the Russian River.

Regionally, the Pacific High influences the wind patterns of California. In the Bay Area during summer and fall months, the prevailing northwesterly flow is channeled through the San Francisco Bay where the flow diverges and takes on a strong southerly component in Santa Rosa. During the winter months, the prevailing wind pattern is from the northwest, while the spring period marks a transition from northwesterly flow to the more southerly component of summer. Wind patterns in the Petaluma and Cotati valleys are strongly influenced by the Petaluma Gap. The predominant wind pattern in this region is for marine air to move eastward through the Petaluma Gap, then to split into northward and southward paths as it moves into the Cotati and Petaluma valleys. Santa Rosa's prevailing winds are out of the south and southeast.

**Meteorological Influences on Air Quality**

The topography and temperature inhibits dispersion of pollutant emissions with inversion layers when the winds stop. During the summer, the prevailing south wind carries ozone (O₃)-laden air that originates in the Bay Area and contributes to some of Sonoma County’s (County) O₃ air pollution. When the winds stop in winter, inversion layers trap and concentrate pollutants – from fireplaces and agricultural burning – causing air quality concerns.

Vertical dispersion of air pollutants in the Amended Project Area is often hampered by the presence of these persistent temperature inversions in the atmospheric layers of the earth’s surface. The net input of cumulative pollutants into the atmosphere from mobile and stationary sources does not vary substantially by season. The duration of an inversion layer increases the concentration of pollutants in the inversion layer. Strong winds or daytime warming of the surface air layer is required to disperse the pollutants horizontally. During the winter, motor vehicle emissions such as carbon monoxide (CO) and nitrogen dioxide (NO₂) are of concern because of low inversions and stagnant air that prevent them from dispersing. O₃ is less prevalent in the winter due to the lack of intense sunlight needed to produce it from its chemical precursors, volatile organic compounds (VOCs) and oxides of nitrogen (NOₓ).

6.1 AIR QUALITY

CRITERIA AIR POLLUTANTS

Air Pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation.

Seven air pollutants have been identified by the US Environmental Protection Agency (EPA) as being of concern nationwide: CO; O₃; NO₂; particulate matter sized 10 microns or less (PM₁₀), also called respirable particulate and suspended particulate; fine particulate matter equal to or less than 2.5 microns in size (PM₂.₅); sulfur dioxide (SO₂); and lead (Pb). These pollutants are collectively referred to as criteria pollutants. The sources of these pollutants, their effects on human health and the nation’s welfare, and their final deposition in the atmosphere vary considerably.

Carbon Monoxide (CO)

CO is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the severest meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO concentrations are typically higher in winter. As a result, California has required the use of oxygenated gasoline in the winter months to reduce CO emissions.

Ozone (O₃)

O₃ is the principal component of smog, and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROG) and NOₓ in the presence of sunlight. ROG and NOₓ are called precursors of O₃; NOₓ includes various combinations of nitrogen and oxygen, including NO, NO₂, NO₃, etc. O₃ is a principal cause of lung and eye irritation in the urban environment. Significant O₃ concentrations are normally produced only in the summer, when atmospheric inversions are greatest and temperatures are high. ROG and NOₓ emissions are both considered critical in O₃ formation. Control strategies for O₃ have focused on reducing emissions from vehicles, industrial processes using solvents and coatings, and consumer products.

Nitrogen Dioxide (NO₂)

NO₂ is a product of combustion, and is generated in vehicles and in stationary sources, such as power plants and boilers. NO₂ can cause lung damage. As noted above, NO₂ is part of the NOₓ family, and is a principal contributor to O₃ and smog.

Respirable Particulate Matter (PM₁₀)

Particulate matter (PM) includes both liquid and solid particles of a wide range of sizes and composition. While some PM₁₀ comes from automobile exhaust, the principal source in the
County is dust from the action of vehicle wheels on paved and unpaved roads during warm spring and summer months. The second most common source is from the indoor and outdoor burning of wood for heat or brush removal during the winter months. PM$_{10}$ can cause increased respiratory disease, lung damage, and premature death. Control of PM$_{10}$ is through the control of dust at construction sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

**Fine Particulate Matter (PM$_{2.5}$)**

The sources, health effects, and control of PM$_{2.5}$ are similar to those of PM$_{10}$. In 1997, the EPA determined that the health effects of PM$_{2.5}$ were severe enough to warrant an additional standard. The BAAQMD started testing for this constituent in 1998.$^2$ PM$_{2.5}$ data has not been collected for Northern Sonoma County by the ARB or NSCAPCD.

**Sulfur Dioxide (SO$_2$)**

SO$_2$ is a combustion product, with the primary source being power plants and heavy industry that use coal or oil as fuel. SO$_2$ is also a product of diesel engine combustion. The health effects of SO$_2$ include lung disease and breathing problems for asthmatics. SO$_2$ in the atmosphere contributes to the formation of acid rain. In the BAAB, there is relatively little use of coal and oil, and SO$_2$ is of lesser concern than in many other parts of the country.

**Lead (Pb)**

Lead is a stable compound which persists and accumulates both in the environment and in animals. The lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. However, lead emissions have significantly decreased due to the near elimination of the use of leaded gasoline.

**TOXIC AIR CONTAMINANTS**

In addition to the criteria air pollutants, another group of airborne substances – called Toxic Air Contaminants (TACs) – is known to be highly hazardous to health, even in small quantities. TACs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (injury or illness). TACs are classified as non-criteria pollutants, because no ambient air quality standards (AAQS) have been established for them. The effects of these substances are very diverse and their health impacts tend to be local, rather than regional.

TACs can be emitted from a variety of common sources – including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Natural source emissions include windblown dust and wildfires. Farms, construction-sites, and residential areas can also contribute to toxic air emissions. The CARB has also recently identified diesel particulate matter (DPM) as a TAC.

The CARB has determined that any source that poses a risk to the general population that is equal to or greater than 10 people out of 1 million contracting cancer as excessive. When

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$^2$ CARB, Top Four PM$_{2.5}$ Measurements, retrieved from http://www.arb.ca.gov/adam/
estimating this risk, it is assumed that an individual is exposed to the maximum concentration of any given TAC continuously for 70 years.

The CARB has conducted studies to determine the total cancer inhalation risk to individuals due to outdoor toxic pollutant levels. According to the map prepared by the CARB showing the estimated inhalation cancer risk for TACs in the State of California, the Amended Project Area is located in an area with an existing estimated risk that is less than 250 cancer cases per one million people. This represents the lifetime risk that less than 250 people in one million may contract cancer from inhalation of toxic compounds at current ambient concentrations. While TACs are produced by many different sources, the largest contributor to inhalation cancer risk in the State is DPM.

DPM is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. According to the CARB’s Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, the existing average statewide potential cancer risk from DPM is over 500 potential cancer cases per one million people.

**REGULATORY SETTING**

Air quality in the Amended Project Area is regulated by several jurisdictions including the EPA, the CARB, the BAAQMD, and the NSCAPCD. Each jurisdiction develops rules, regulations, policies, and/or goals to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

Local air quality management districts (AQMDs) have been given authority by the state to manage their own stationary source emissions. The CARB requires that local AQMDs develop their own strategies for achieving compliance with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), but maintains regulatory authority over these strategies, as well as all mobile source emissions throughout the state.

The AAQS define clean air. Specifically, the AAQS establish the concentration above which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. The amount of pollutants released and the atmosphere’s ability to transport and dilute the pollutants affect a given pollutant’s concentration in the atmosphere. Factors affecting transport and dilution include terrain, wind, atmospheric stability, and – for photochemical pollutants – sunlight. The County’s poor air quality can largely be attributed to emissions, geography, and meteorology.

The federal and state standards for criteria pollutants and other regulated air pollutants are shown in Table 6.1-1. Table 6.1-2 lists the health effects associated with these pollutants.

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### Table 6.1-1
**National and California Ambient Air Quality Standards**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>California Standards&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Federal Standards&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Concentration&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Primary&lt;sup&gt;c,d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ozone (O₃)</td>
<td>1 Hour</td>
<td>0.09 ppm (180 µg/m³)</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>8 Hour</td>
<td>0.070 ppm (137 µg/m³)</td>
<td>0.075 ppm (147 µg/m³)</td>
</tr>
<tr>
<td>Respirable Particulate Matter (PM₁₀)</td>
<td>24 Hour</td>
<td>50 µg/m³</td>
<td>150 µg/m³</td>
</tr>
<tr>
<td></td>
<td>Annual Arithmetic Mean</td>
<td>20 µg/m³</td>
<td>--</td>
</tr>
<tr>
<td>Fine Particulate Matter (PM₂₅)</td>
<td>24 Hour</td>
<td>No separate state standard</td>
<td>35 µg/m³</td>
</tr>
<tr>
<td></td>
<td>Annual Arithmetic Mean</td>
<td>12 µg/m³</td>
<td>15 µg/m³</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>8 Hour</td>
<td>9.0 ppm (10 mg/m³)</td>
<td>9 ppm (10 mg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>20 ppm (23 mg/m³)</td>
<td>35 ppm (40 mg/m³)</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO₂)</td>
<td>Annual Arithmetic Mean</td>
<td>0.030 ppm (56 µg/m³)</td>
<td>0.053 ppm (100 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.18 ppm (339 µg/m³)</td>
<td>-</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>Annual Arithmetic Mean</td>
<td>-</td>
<td>0.030 ppm (80 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>24 Hour</td>
<td>0.04 ppm (105 µg/m³)</td>
<td>0.14 ppm (365 µg/m³)</td>
</tr>
<tr>
<td></td>
<td>3 Hour</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1 Hour</td>
<td>0.25 ppm (655 µg/m³)</td>
<td>-</td>
</tr>
<tr>
<td>Lead (Pb)&lt;sup&gt;f&lt;/sup&gt;</td>
<td>30 Day Average</td>
<td>1.5 µg/m³</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Calendar Quarter</td>
<td>-</td>
<td>1.5 µg/m³</td>
</tr>
<tr>
<td></td>
<td>Rolling 3-Month Average&lt;sup&gt;g&lt;/sup&gt;</td>
<td>-</td>
<td>1.5 µg/m³</td>
</tr>
<tr>
<td>Visibility Reducing Particles</td>
<td>8 Hour</td>
<td>Extinction coefficient of 0.23 per kilometer – visibility within 10 miles or more due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape</td>
<td>No Federal Standards</td>
</tr>
<tr>
<td>Sulfates (SO₄)</td>
<td>24 Hour</td>
<td>25 µg/m³</td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>1 Hour</td>
<td>0.03 ppm (42 µg/m³)</td>
<td></td>
</tr>
<tr>
<td>Vinyl Chloride&lt;sup&gt;f&lt;/sup&gt;</td>
<td>24 Hour</td>
<td>0.01 ppm (26 µg/m³)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter— PM₁₀, PM₂₅, 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.
b 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$_{10}$, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m$^3$ is equal to or less than one. For PM$_{2.5}$, 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 EPA for further clarification and current federal policies.

c 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.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f 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.

g National lead standard, rolling 3-month average: final rule signed October 15, 2008.


### TABLE 6.1-2

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O$_3$)</td>
<td>Eye irritation; Respiratory function impairment</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>Impairment of oxygen transport in the blood stream; Aggravation of cardiovascular disease; Impairment of central nervous system function; Fatigue, headache, confusion, dizziness; Can be fatal in the case of very high concentrations in enclosed places</td>
</tr>
<tr>
<td>Particulate Matter (PM)</td>
<td>May be inhaled and lodge in and irritate the lungs; Increased risk of chronic respiratory disease with long exposure; Altered lung function in children; May produce acute illness with sulfur dioxide</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO$_2$)</td>
<td>Increased risk of acute and chronic respiratory disease</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO$_2$)</td>
<td>Irritation of lung tissue; Increased risk of acute and chronic respiratory disease</td>
</tr>
</tbody>
</table>

STATE

The State of California, for purposes of air quality classification, has divided the state into meteorologically and geographically similar areas called air basins. Each air basin is responsible for meeting NAAQS and CAAQS for criteria pollutants and is classified by the EPA and CARB as an attainment or non-attainment area for each pollutant.

California Clean Air Act

The CARB is responsible for enforcing the California Clean Air Act (CCAA) of 1988 (26 California Health and Safety Code [CH&SC] § 10000 et seq.), which established the CAAQS for criteria pollutants – as well as additional state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These CAAQS are generally more restrictive than the NAAQS.

Toxic Air Contaminants

Regulation of TACs is achieved through federal and state controls on individual sources; the 1990 Federal CAA Amendments offer a comprehensive plan for achieving significant reduction in both mobile and stationary source emissions of certain designated Hazardous Air Pollutants (HAPs). All major stationary sources of designated HAPs are required to obtain and pay the required fees for an operating permit under Title V of the federal CAA Amendments.

The Air Toxics Hot Spots Information and Assessment Act of 1987 (Assembly Bill (AB) 2588), California Health and Safety Code Section 44300 et seq, provides for the regulation of over 200 air toxics and is the primary air contaminant legislation in the state. Under the Act, local AQMDs may request that a facility account for its TAC emissions. Local AQMDs then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment (HRA) and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. The purpose of AB 2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The CARB is responsible for the identification and control of TACs, except pesticide use. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The CARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects.

The CARB identified DPM as a TAC. DPM is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. In October 2000, the CARB released the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and...
This plan identifies DPM as the predominant TAC in California and proposes methods for reducing diesel emissions.

TAC impacts are assessed using a standard Maximally Exposed Individual (MEI) health risk of 10 people in 1 million. The CARB and the local AQMDs have determined that any source that poses a risk to the general population that is equal to or greater than 10 people out of 1 million contracting cancer as excessive. When estimating this risk, it is assumed that an individual is exposed to the maximum concentration of any given TAC, continuously for 70 years. If the risk of such exposure levels meets or exceeds the threshold of 10 excess cancer cases per 1 million people, then the CARB and the local AQMD require the installation of best available control technology (BACT) or maximum available control technology (MACT) to reduce the risk threshold. This ensures that the toxic source is being controlled to the fullest extent possible using current technology.

**Senate Bill 656 - Reducing Particulate Matter in California**

As a first step in the implementation of Senate Bill (SB) 656 -- Reducing Particulate Matter in California, the CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by AQMDs to reduce PM$_{10}$ and PM$_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. As a second step, AQMDs must adopt implementation schedules for selected measures from the list. The implementation schedules will identify the appropriate subset of measures, and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each AQMD will prioritize measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration is also given to ongoing programs such as measures being adopted to meet NAAQS or the state O$_3$ planning process. The consideration and adoption of AQMD rules in their implementation schedules, coupled with CARB's ongoing programs, will ensure continued progress in reducing public exposure to PM and attainment of the state and federal standards.

In July 2007, the CARB adopted a regulation aimed at reducing DPM (a particular form of PM$_{2.5}$) and NO$_X$ emissions from the state's in-use off-road diesel engines. The rule will affect off-road vehicles used in construction, mining, airport ground support, and other industries. The proposed regulation would require equipment fleets to apply exhaust retrofits that capture PM before it is emitted to the air, and to accelerate turnover of fleets to newer, cleaner engines.

**REGIONAL**

**Bay Area Air Quality Management District**

Most of the Amended Project Area is under the jurisdiction of the BAAQMD. The BAAQMD is responsible for implementing emissions standards and other air quality regulations governing activities in the majority of the Amended Project Area. Specific rules and regulations adopted by the BAAQMD limit the emissions that can be generated by various
uses and/or activities, and identify specific pollution reduction measures that must be implemented in association with various uses and activities. These rules regulate not only emissions of the six criteria air pollutants, but also toxic emissions and acutely hazardous non-radioactive materials emissions. The BAAQMD also processes commercial and industrial applications to construct emission devices and issues permits to operate, which are renewed on an annual basis. The BAAQMD estimates releases of air contaminants and maintains an emission inventory to track emissions of all permitted devices. It also proposes mitigation strategies, working cooperatively with affected emission sources, evaluating potential health risks, and adopting air pollution control measures and regulations that seek to attain both the NAAQS and CAAQS.

BAAQMD regulations also apply to construction equipment and activities. This includes portable equipment (e.g., gasoline- or diesel-powered engines used for power generation, pumps, compressors, pile drivers, and cranes), architectural coatings, and paving materials. Equipment used during construction is subject to the requirements of BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements) with respect to portable equipment unless exempt under Rule 2-1-105 (Exemption, Registered Statewide Portable Equipment); BAAQMD Regulation 8 (Organic Compounds), Rule 3 (Architectural Coatings); BAAQMD Regulation 8 (Organic Compounds), and Rule 15 (Emulsified and Liquid Asphalts).

**Air Quality Attainment Plan**

The CCAA requires non-attainment areas (for O₃) to develop air quality plans that contain strategies for achieving attainment. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans (SIPs). The federal CAA and the CCAA require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM₁₀ standard). Plans are also required under federal law for areas designated as “maintenance” for national standards. Such plans include strategies for attaining the standards. Currently, there are three plans applicable for the Bay Area:

- Ozone Attainment Plan for the 1-Hour National Ozone Standard (ABAG, 1999) developed to meet federal O₃ air quality planning requirements;
- Carbon Monoxide Maintenance Plan (Association of Bay Area Governments (ABAG), 1994) developed to ensure continued attainment of the national CO standard; and
- Bay Area 2005 Ozone Strategy (BAAQMD, 2006), which was adopted by the BAAQMD Board of Directors on January 4, 2006, reviews the region's progress over the years in reducing O₃ levels, describes current conditions, and charts a course for future actions to further reduce O₃ and O₃ precursor levels in the Bay Area.

The most current plan, the Bay Area 2005 Ozone Strategy, reviews the region's progress over the years in reducing O₃ levels, describes current conditions, and charts a course for future actions to further reduce O₃ levels in the Bay Area. The control strategy is a central element of the 2005 Ozone Strategy. The control strategy outlines a set of control measures to further reduce O₃ precursor emissions in order to reduce O₃ levels in the Bay Area and to reduce transport of pollution to downwind regions. The control strategy includes stationary source measures, mobile source measures and transportation control measures.

The proposed Draft 2009 Clean Air Plan (CAP) is an update of and progress report for the 2005 Ozone Strategy in compliance with the CCAA. The Draft CAP has been released and
is undergoing environmental review. The proposed CAP provides a strategy for making progress toward attainment of the California O₃ standards in the Bay Area. This update of the 2005 Ozone Strategy will provide a multi-pollutant approach to air quality planning in the Bay Area. Although there are no requirements to develop a multi-pollutant plan at this time, the multi-pollutant plan addresses O₃, PM, TACs, and GHGs via an integrated control strategy.⁷

Bay Area Air Quality Management District California Environmental Quality Act Guidelines

The most recent version of the BAAQMD California Environmental Quality Act (CEQA) Guidelines was published December 1999: CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans. These Guidelines are a set of recommendations that provide specific guidance on evaluating projects relative to the above general criteria (BAAQMD, 1999). For temporary construction-phase impacts, BAAQMD recommends a qualitative approach that focuses on the dust control measures that would be implemented. If appropriate mitigation measures are implemented to control PM₁₀ emissions, then the impact from construction would be less than significant. For evaluating operational-phase emissions, BAAQMD recommends that local agencies use criteria of 80 pounds per day or 15 tons per year to identify significant increases in emissions of ROG, NOₓ, and PM₁₀ from individual development projects; an exceedance of the criteria would be considered a significant impact.

For CO, an increase of 550 pounds per day would be considered significant if it leads to or contributes to CO concentrations exceeding the CAAQS of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour (i.e., if it creates a hot spot). Generally, if a project results in an increase in ROG, NOₓ, or PM₁₀ of more than 80 pounds per day, then it would also be considered to contribute considerably to a significant cumulative effect. For projects that would not lead to a significant increase of ROG, NOₓ, or PM₁₀ emissions, the cumulative effect is evaluated based on a determination of the consistency of the project with the regional CAP.

The BAAQMD is in the process of updating their CEQA Guidelines, and is conducting public workshops in late 2009. The CEQA Guidelines Update will review, revise, and develop significance thresholds, assessment methodologies, and mitigation strategies for criteria pollutants, air toxics, odors, and GHG emissions.

Northern Sonoma County Air Pollution Control District

The NSCAPCD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient pollutant concentrations. The NSCAPCD jurisdiction encompasses the northern portion of the County, and the northernmost 60 acres of the Added Area.

The NSCAPCD is in attainment with the CAAQS for all pollutants. Therefore, a CAP for the NSCAPCD is not required.

6.1 AIR QUALITY

Town of Windsor General Plan

The General Plan contains the following applicable policies and implementation program related to air quality:

Policies

G.1 Comply with the State and federal ambient air quality standards and participate in regional efforts to improve air quality.

G.2 Encourage land use patterns and management practices that conserve air and energy resources.

Implementation Programs

G.1 Environmental Review. In its review of discretionary projects, pursuant to the California Environmental Quality Act, the Town shall require appropriate mitigation measures to reduce significant air quality impacts to acceptable levels.

EXISTING CONDITIONS

EXISTING AIR QUALITY MONITORING DATA

The CARB, NSCAPCD, and BAAQMD currently monitor air quality throughout the Amended Project Area through a regional air quality monitoring network that measures the ambient concentrations of the six criteria air pollutants. The Healdsburg Municipal-Airport monitoring station in the NCAB 1-hour and 8-hour O₃, and PM₁₀ shows that no violations have occurred since 2004. The 5th Street monitoring station in Santa Rosa is nearest to the center of the Amended Project Area (located approximately 8.5 miles south-southeast) and for the purposes of this analysis, the data collected at this station is considered to be representative of the air quality in the Amended Project Area. Summaries of monitoring data for O₃, CO, PM₁₀, and PM₂.₅ recorded at the 5th Street station indicate that there were two violations of the 24-hour State PM₁₀ standard and three violations of the 24-hour National PM₂.₅ standard in 2006 recorded in Santa Rosa within the last five years (2004-2008). The Town was within federal attainment levels for O₃, CO, and PM₁₀ from 2004 to 2008.

EXISTING ATTAINMENT STATUS

The CARB currently identifies the BAAB as a non-attainment area for the State 1-hour and national 8-hour O₃ standards and for the State PM₁₀ and PM₂.₅ standards. The Bay Area is attainment or unclassified with respect to the other AAQS (CARB, 2009). In June 2004, the Bay Area was designated as a marginal nonattainment area of the national 8-hour O₃ standard. US EPA lowered the national 8-hour O₃ standard from 0.80 to 0.75 ppm effective May 27, 2008. EPA will issue final designations based upon the new 0.75 ppm O₃ standard by March 2010.

The NSCAPCD attainment status for O₃ has changed from transitional nonattainment to attainment. O₃ levels, measured by peak concentrations and the number of days over the State one-hour standard, have declined substantially as a result of aggressive programs by

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other AQMDs (e.g., the BAAQMD) as well as other regional, State, and federal agencies. 
O₃ transported from the San Francisco Bay Area Basin greatly affects the northern Sonoma
County portion of the NCAB. Based on emission inventories collected by the CARB, the
emissions in Northern Sonoma County are not high enough to cause ozone violations.

SENSITIVE RECEPTORS

The location of a development project is a major factor in determining whether it will result in
localized air quality impacts. The potential for adverse air quality impacts increases as the
distance between the source of emissions and members of the public decreases.

Impacts on sensitive receptors are of particular concern. Sensitive receptors are facilities
that house or attract children, the elderly, people with illnesses, or others who are especially
sensitive to the effects of air pollutants. Sensitive land uses include residential communities,
schools and school yards, daycare centers, parks and playgrounds, and hospitals and
medical facilities.

Sensitive receptors located within Existing Project Area include Windsor Creek Elementary
School, residential uses, and neighborhood parks. Residential uses abut US 101 within the
Existing Project Area, and are located within 50 feet of the railroad right-of-way (ROW) along
Berwyn Way. There are no major industrial uses within the Amended Project Area.

Air quality problems arise when sources of air pollutants and sensitive receptors are located
near one another. There are several types of land use conflicts that should be avoided:

- A sensitive receptor is in close proximity to a congested intersection or roadway with
  high levels of emissions from motor vehicles. High concentrations of CO, fine PM, or
  TACs are the most common concerns.

- A sensitive receptor is close to a source of TACs or a potential source of accidental
  releases of hazardous materials.

- A sensitive receptor is close to a source of odorous emissions. Although odors
generally do not pose a health risk, they can be quite unpleasant and often lead
citizen complaints to the AQMD and to local governments.

- A sensitive receptor is close to a source of high levels of nuisance dust emissions.

Localized impacts to sensitive receptors generally occur in one of two ways:

- A (new) source of air pollutants is proposed to be located close to existing sensitive
  receptors. For example, an industrial facility is proposed for a site near a school.

- A (new) sensitive receptor is proposed near an existing source of air pollutants. For
  example, a residential development is proposed near a wastewater treatment plant.

ENVIRONMENTAL IMPACTS

METHODOLOGY

Redevelopment programs and projects are intended to eliminate blight and blighting
conditions within the Amended Project Area that currently prevent the full and effective use
of the land – consistent with the General Plan, as amended over time. Impacts of implementing the Amendment were programmatically evaluated based on anticipated redevelopment actions throughout the effective life of the Amendment and include:

- Demolition or rehabilitation of structures
- Installation of streets, utilities, and other public facilities and infrastructure
- Funding construction and development assistance for community centers, recreation centers, childcare centers, parks, urban design plans, master plans, streetscapes and facility improvements
- Construction of affordable housing

Because the NSCAPCD is in attainment status for all pollutants and is a small portion of the Amended Project Area, this analysis defers to the more comprehensive BAAQMD requirements and assumes their applicability to the entire Amended Project Area for purposes of this CEQA analysis.

For construction phase impacts, the BAAQMD does not require quantification of construction emissions, but recommends that significance be based on a consideration of the control measures to be implemented (BAAQMD, 1999). Therefore, construction impacts are discussed qualitatively and the BAAQMD recommended dust abatement measures are identified.

The criteria pollutants that are most important for this air quality impact analysis are those that can be traced principally to motor vehicle travel and indoor and outdoor burning of wood. Of these pollutants, CO, ROG, NOX, and PM_{10} are evaluated on a regional or mesoscale basis. CO is often analyzed on a localized or microscale basis in cases of congested traffic conditions. Although PM_{10} has very localized effects, there is no EPA approved methodology to evaluate microscale impacts of PM_{10}. Methods for analysis of PM_{2.5} have been implemented since 1999.

Short-term air quality impacts during construction and long-term impacts during operation were programmatically considered, including intermittent demolition/construction-related impacts from fugitive dust (PM_{10}), mobile or stationary construction equipment emissions, and construction and vehicular emissions. The specific location and intensity of the development in the Amended Project Area that could cause such impacts over the extended period of the Amendment is for the most part unknown – except that all development must be consistent with the General Plan and that much of the Amended Project Area is residentially developed. Potential air quality impacts in this section are therefore based on anticipated General Plan build-out resulting from the removal of barriers to growth.

**Thresholds of Significance**

Significance criteria are the basis for determining whether the Amendment would result in significant short-term or long-term impacts to local and regional air quality conditions. For this qualitative analysis, the thresholds of significance are based on those outlined in CEQA Guidelines Appendix G. A significant impact would occur if the proposed project would:

- 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 for which the project region is in non-attainment under an applicable NAAQS or CAAQS (including releasing emissions which exceed quantitative thresholds for $O_3$ precursors)
• Expose sensitive receptors to substantial pollutant concentrations
• Create objectionable odors affecting a substantial number of people

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 6.1-1 The Amendment would engender development within the Amended Project Area that could conflict with or obstruct implementation of the applicable air quality plan. This would be a less-than-significant impact.

The Clean Air Plan/Ozone Strategy was developed and is maintained based on information about existing development and uses, as well as on assumptions about incremental and ultimate growth as envisioned in local general plans. The BAAQMD CAP’s strategies regarding the attainment and maintenance of the air basin consistent with federal and State standards are based on this information. The CAP includes thresholds for significance in determining if a local plan, such as a general plan or specific plan, is consistent with the regional CAP, and specifies that a plan must meet the following criteria:

- Consistency with CAP population and vehicle miles traveled (VMT) assumptions
- Consistency with CAP transportation control measures (TCMs)
- No significant odors and toxics emissions

Air pollutant emissions are a function of population and human activity. If population growth were greater than that assumed in the CAP emissions inventory, then population related emissions such as increased vehicular trip generation, would likely be greater than prior projections. The 2005 CAP population estimates were derived from ABAG’s Projections, which in turn were based on adopted general plans and historic growth trends. The proposed Amendment would eliminate barriers to population growth consistent with land uses that were adopted for the Amended Project Area prior to adoption of the CAP. No land use changes are proposed as a part of the Amendment. The additional population that could be engendered by the proposed Amendment is therefore already incorporated into the CAP, and would be consistent with the CAP and would not impede implementation of the CAP.

Local plans also need to include TCMs to reduce impacts on air emissions. TCMs are strategies to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion. TCMs include:

- Support voluntary employer based trip reduction programs
- Improve bicycle access and facilities
- Improve arterial traffic management
- Incorporate local clean air plans, policies, and programs
- Conduct demonstration projects to develop new strategies to reduce motor vehicle emissions
- Encourage pedestrian travel
- Promote traffic calming measures

There are numerous area plans within the Amended Project Area that focus development in a pedestrian and transit orientation. The Shiloh Road Village Vision Plan, Town of Windsor Downtown Plan (Downtown Plan), and Old Redwood Highway (ORH) Vision Plan, as well as other pedestrian, bicycling and transit oriented General Plan policies, were designed with a focus on creating a transit- and pedestrian-oriented environments that could assist in taking people out of the private automobile for work and pleasure purposes, which would ultimately reduce emissions. This design already incorporates some of the above TCMs such as improved bicycle access and facilities and pedestrian conduits, intersection and traffic flow management, and traffic calming measures. The Added Area is encompassed within the Shiloh Road and ORH Vision Plans, and the Amendment would assist in the completion of these plans. Removing barriers to redevelopment within these areas would promote consistency with adopted plans, and would reduce the pressure for building lower density development on agricultural land at the urban fringes, and promote population centers along transit routes, both bus and the future Sonoma-Marin Area Rail Transit (SMART) rail. Therefore, the Amendment would not conflict with or obstruct implementation of the applicable CAP.

**Mitigation**
None required

**Impact 6.1-2 Redevelopment engendered development and infrastructure construction activities would generate short-term emissions of regional criteria pollutants. This would be a potentially significant impact.**

With future development and infrastructure construction in the Amended Project Area, air pollutants would be emitted by construction equipment and fugitive dust (PM) would be generated during grading and site preparation and by wind erosion over exposed earth surfaces and material stockpiles. Fugitive dust can exceed BAAQMD thresholds of significance for PM, and can further be a nuisance at neighboring properties, soiling exposed surfaces and requiring more frequent washing. Fuel combustion from heavy-duty equipment operation can also generate PM emissions. Ambient pollutant concentrations from combustion emissions of construction equipment would also increase from implementation of the Amendment, as infrastructure is constructed and new development occurs over time in the Amended Project Area.

Construction activities are regulated by the Town and the BAAQMD. Construction in the Amended Project Area over the life of the Amendment will include demolition of some structures and grading preparation for all new construction. PM emissions in the form of fugitive dust would vary from day to day, depending on the level and type of construction activity (demolition and grading), silt content of the soil, and prevailing weather. Emissions from construction equipment (i.e., graders, backhoes, haul trucks etc.) would generate PM$_{10}$, PM$_{2.5}$, NO$_X$, and ROG emissions.
The Town is currently in a non-attainment area for PM$_{10}$ and PM$_{2.5}$. These standards are also sometimes exceeded in the vicinity of construction sites. The largest source of construction-related PM emissions would be associated with the demolition of existing structures as properties are recycled. Demolition activities are required to conform to BAAQMD regulations and programs to reduce PM$_{10}$ and PM$_{2.5}$ emissions. Air pollution-sensitive land uses and activities adjacent to construction sites may also be exposed more frequently to ambient dust concentrations that exceed the AAQS. The BAAQMD approach emphasizes implementation of effective and comprehensive dust control measures, rather than detailed quantification of emissions (BAAQMD, 1999). The BAAQMD currently considers construction related impacts of proposed projects to be less than significant if required dust-control measures are implemented. Under the proposed CEQA Guidelines, quantitative thresholds would be established for project-specific construction emissions, which would require analysis and mitigation using the latest available version of URBEMIS.

The draft Guidelines outline preliminary screening for a conservative indication of whether a proposed project would result in the generation of construction-related criteria air pollutants and/or precursors that exceed the proposed thresholds for NOx, ROG, and PM. Only city parks over 67 acres are anticipated to exceed the PM standards. Residential single-family subdivisions of at least 114 units, multi-family and condominium projects over approximately 240 units, schools, community and commercial facilities over 277,000 square feet (sf), hotels/motels over 554 rooms are anticipated to exceed ROG thresholds, and general light industrial over 259,000 sf/11 acres/540 employees, and heavy industrial or industrial parks of 11 acre or 259,000 sf would be anticipated to exceed NOx thresholds.

The Amended Project Area is urbanized, with some parcels that are underutilized or previously developed. The greatest amount of new development is anticipated in the Added Area under the Shiloh Road and the ORH Vision Plans. Mitigation measures have been adopted for development pursuant to the Shiloh Road Vision Plan that were determined to ensure construction impacts are less that significant as that planning area is developed in phases. The individual phases of development are not anticipated to exceed the proposed construction screening levels.

The ORH Vision Plan provides a pedestrian/transit oriented conceptual overlay on the existing General Plan land uses, to encourage commercial and mixed-use residential development consistent with the goals and objectives of the Town. Most parcels have some kind of existing low-density residential, commercial, or industrial use, and few exceed 1 acre. Redevelopment could encourage the consolidation of smaller parcels into larger development. The largest existing parcel in the Added Area is approximately 15 acres, and has been consolidated with two other parcels for an approved 26+ acre automobile dealership with a service shop. This Sanderson Ford project was the subject of an EIR (2007) that determined that construction emissions would be less than significant. The total square footage of 255,000+ would also not exceed the proposed construction screening levels.

The Bell Village Project is a planned development including 400 residential units and 6+/- acres of commercial development on a 25+ acre former mobile home site in the ORH Vision area; since it replaces 219 units that were recently removed from the site, it would also not exceed the screening levels. The Bell Village Project site is in close proximity to the Town Green and is anticipated to provide housing and services supportive of the existing Downtown environment. The former Windsor Mill site is the largest remaining vacant parcel
in the Existing Project Area; development on the site would be somewhat restricted by the Windsor Creek floodplain, and would not be anticipated to exceed screening levels.

In addition, the Town has adopted a Growth Control Ordinance (Title XVI, Chapter 4 of the Municipal Code), which limits the amount of development that can occur each year and manages a jobs/housing balance. All anticipated redevelopment actions, and development within the Amended Project Area as a result of redevelopment activities, would be consistent with the General Plan land uses and subject to project-by-project permitting and mitigation consistent with Town and BAAQMD requirements. When the specifications and timing of individual redevelopment projects are known, construction procedures will be assessed against the criteria and standards applicable at the time of construction. The detailed procedures and requirements of the Town and BAAQMD for all future development projects are anticipated to ensure potential construction emissions remain below the BAAQMD’s significance thresholds.

The BAAQMD recommends the implementation of all Basic Construction Mitigation Measures outlined in the proposed CEQA Guidelines whether or not construction-related emissions exceed applicable Thresholds of Significance, as such measures represent best management practices. Without such mitigations, construction emissions for redevelopment projects would be potentially significant.

**Mitigation**

6.1-2 Future redevelopment projects shall comply with all current Basic Construction Mitigation Measures at the time of development approvals.

**Significance after Mitigation**

Less than significant

**Impact 6.1-3** Development engendered by redevelopment could result in long-term operational increases in regional criteria pollutants. This would be a less-than-significant impact.

In addition to construction-related emissions, total emissions include mobile sources, non-permitted stationary or area sources, and permitted stationary devices. Commuting vehicles and on-site motor vehicles/mobile equipment would represent the greatest proportion of emission sources in the Amended Project Area.

The proposed Amendment would remove barriers to General Plan build-out in the Amended Project Area. As noted above, except for underdeveloped rural residential and commercial properties in the Added Area and vacant/underutilized commercial uses along Old Redwood Highway, most of the Amended Project Area is developed and/or designated for mixed urban uses. As discussed in Subchapter 6.10, Transportation and Circulation, General Plan build-out is not anticipated to result in a significant increase in vehicle trips. General Plan policies to reduce dependency on the automobile, and redevelopment activities to enhance pedestrian, bicycle, and transit modes of travel will further reduce anticipated increases in operational emissions.

Most development projects also generate area source emissions. Area sources include examples such as water heaters, fireplaces, lawn maintenance equipment, and application
of paints and lacquers, which individually emit fairly small quantities of air pollutants, but cumulatively may represent significant quantities of emissions.

Stationary or point sources consist of a single emission source with an identified emission point at a facility, such as a stack. Facilities can have multiple emission point sources located onsite. Examples of these sources include boilers and other types of combustion equipment, manufacturing plants, quarries. Stationary sources are usually associated with manufacturing and industrial processes, and there is no industrial or heavy commercial zoning within the Amended Project Area. Other smaller sources include print shops and gasoline stations, which are more common in commercial areas like those found in the Amended Project Area.

The BAAQMD regulates air quality in the Town through its permit authority over most types of stationary emission sources and through its planning and review activities. The land use and transportation patterns established through the Town General Plan – as well as state, federal, and regional regulations and transportation systems – determine to a large extent the severity and location of mobile source air quality impacts. The scale and timing of individual projects will determine the need for project-specific mitigation measures. When the specifications and timing of individual redevelopment projects are known, long-term emissions will be assessed against the criteria and standards applicable at the time of development, as well as mitigation measures adopted for area plans, such as the Shiloh Road Vision Plan.

The Amendment would remove barriers to infill and pedestrian oriented development within planned areas such as the Downtown Plan, Shiloh Road Vision Plan, and ORH Vision Plan, which have been specifically designed to balance jobs and housing, locate residents within walking distance of transit and shopping, and promote a reduction in vehicle trips. Compliance with the Town’s Growth Ordinance, BAAQMD requirements, and project-by-project assessment and mitigation in accordance with federal, state, and local requirements, the Amendment would result in a less-than-significant impact on long-term operational impacts in the Amended Project Area.

**Mitigation**

None required

**Impact 6.1-4** Redevelopment engendered development could increase the number of sensitive receptors exposed to significant levels of diesel particulate matter (DPM). This would be a potentially significant impact.

As stated in the CARB Air Quality and Land Use Handbook, freeways may represent a significant source of TAC that has the potential to adversely affect the future residents' health. The handbook states that residential receptors within 1,000 feet of a freeway, especially those within 300 feet, experience adverse health effects such as aggravated asthma symptoms and reduced lung function in children.

The BAAQMD Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major
6.1 AIR QUALITY

contributor to airborne health risk in California.\(^9\) The results of the Phase I analysis indicate that DPM accounts for over 80% of the cancer risk weighted TAC emissions and that on-road and off-road mobile sources are responsible for the majority of cancer risk from air toxics. Phase II recommendations include creating guidelines for evaluating and making a significance determination, which have been included in the Draft CEQA Guidelines.

Although no new significant sources are anticipated to be located within the Amended Project Area, due to the mixed-use residential/commercial zoning, development consistent with the General Plan could place new residential uses within 1,500 feet of US 101, a significant source of DPM. Redevelopment would remove barriers to development that could propose to increase the number of sensitive receptors exposed to TACs from US 101. Most of the ORH Vision Plan area is within 1,000 feet of US 101, and primarily zoned and planned for commercial uses. However, the proposed Bell Village area is located adjacent to the freeway, within the proposed Added Area, and would place multi-family residential buildings within 200 feet of the freeway centerline.

Although the BAAQMD does not have a current protocol, the potential for an impact can be programmatically assessed with the aid of the Sacramento Metropolitan Air Quality Management District’s (SMAQMD) \textit{Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways} (March 2009). The protocol includes a table to provide a screening analysis, where values of incremental cancer risk are defined by receptor distance from the nearest freeway travel lane and the peak hour traffic, measured in vehicles per hour.

Peak hour traffic volumes (vehicles/hour) on US 101 at the Windsor River Road Interchange are outlined in Table 6.1-3. Per guidance of the SMAQMD protocol, for a combined peak hour traffic volume approximated as 8,000 vehicles per hour and a potential sensitive residential receptor distance of 100 feet, the screening table yields an incremental cancer risk of 232 cases per million downwind, and 121 upwind. The protocol dictates that this is below the evaluation criterion of an increased risk of 296 cases per million, thus a site specific Health Risk Assessment (HRA) would not be required.

\begin{table}
\centering
\small
\begin{tabular}{|c|c|}
\hline
\textbf{Mile Point 39.347} & \textbf{PM Hours - Peak Volume} \\
\hline
Ahead Leg – Northbound & 5,000 \\
\hline
Back Leg – Southbound & 3,750 \\
\hline
\end{tabular}
\caption{CALTRANS’ PEAK HOUR VOLUME DATA ON US 101 IN SONOMA COUNTY}
\end{table}

Source: Caltrans’ Peak Hour Volume Data, 2008 data, retrieved October 2009 from http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/

The SMAQMD risk tables assume 70 years continuous exposure to DPM at current levels. This is an extremely conservative assumption given that emissions of DPM are expected to decline significantly (by 90%+) over the next 10 years. Therefore, actual risk to residents in

areas within 1,000 feet of US 101 would be 10 to 100 times lower than risks projected by the SMAQMD Protocol.

This value should furthermore represent a conservative estimate for the maximum exposed sensitive receptor. Background cancer risk based on CARB monitoring of TACs is approximately 500 cancer cases per 1 million; emissions from the freeway replace other emissions as the primary source of cancer risk. The net effect is that the cumulative risk to the public remains the same, but the sources contributing to the risk are altered. Therefore, overall risk to the residents does not change as a result of living near the freeway in the Amended Project Area. This conservative estimate for the incremental increased risk of cancer from DPM is estimated with the following two assumptions: the adjacent freeway experiences its maximum peak traffic volume for every hour over the course of a receptor’s 70 year lifetime and the receptor remains stationary at the closest point of exposure. The conservative nature of this estimate is further compounded by the equally conservative assumptions made by the SMAQMD during their formation of its screening table. Therefore, this risk number should be taken for what it is, a worst-case scenario.

Regardless, any increased exposure to DPM, although statistically less than considerable, could increase in health risks to new residential uses near US 101 as a result of the Amendment; therefore, the impact is potentially significant.

Mitigation

6.1-4 Any redevelopment supported residential project adjacent to or within 300 feet of US 101 shall meet current BAAQMD requirements for evaluating and mitigating DPM effects to the extent feasible.

Significance after Mitigation
Less than significant

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.1-5 Redevelopment engendered project construction activities would contribute to cumulative increases in ozone precursors. This would be a less-than-significant cumulative impact.

As described in the Chapter 5.0, Land Use and Planning, the Amendment must be consistent with the Town’s General Plan. No development beyond that already provided for in the Town’s land use plans is proposed as a part of the Amendment, although the proposed Amendment would remove barriers to planned development.

Population and employment increases would generate new vehicular trips and air pollutant emissions consistent with those anticipated in the General Plan. As discussed in Impact 6.1-1, air pollutant emissions are a function of population and human activity. Population growth engendered by the removal of barriers to development would not be greater than that assumed in the CAP emissions inventory. The 2005 CAP is based on growth projections developed for the region on the basis of land use plans of local jurisdictions, including the Town, and other information. Since the Amendment is fully consistent with the Town’s General Plan, it is also consistent with the regional air quality management plans. Whereas growth in the Amended Project Area must be consistent with adopted plans,
Implementation of the Amendment would not result in cumulative emissions beyond those planned for by the BAAQMD in their attainment date projections. Furthermore, removing barriers to redevelopment within planned pedestrian-oriented infill development would reduce the pressure for building lower density development on agricultural land at the urban fringes, and promote population centers along transit routes, both bus and the future SMART rail, assisting the region in lowering vehicle miles traveled through smart growth implementation. Cumulative emissions as a result of the Amendment would be a *less-than-significant impact*.

**Mitigation**

None required
INTRODUCTION

This Subchapter of the Environmental Impact Report (EIR) addresses biological resources in the Amended Project Area. This section also describes the plant and animal species within the Existing Project Area and Added Area (Amended Project Area), discusses relevant policies, and examines potential impacts on plant, wildlife, and wetland habitats and on rare, threatened, or endangered species that could result from implementation of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). Biological information contained within existing documentation such as the Windsor General Plan EIR (GP EIR, 1995) and recent area EIRs was analyzed for its relevance to habitats and potential impacts of the proposed Amendment. Special-status plant and animal species that could occur within the vicinity of the Amended Project Area were identified from lists identified by the United States Fish and Wildlife Service (USFWS), California Natural Diversity Data Base (CNDDDB [Rarefind] 2009), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2009). Focused biological surveys conducted on portions of the northernmost portion of the Added Area (herein called the Sanderson Parcel) in 2006 were also used where appropriate (Sanderson, 2007).

The Amended Project Area is within the Study Area of the Final Santa Rosa Plain Conservation Strategy (Conservation Strategy). The area is included within in the Conservation Strategy on the Santa Rosa Plain Conservation Strategy Map (Figure 3 dated April 16, 2007). The applicability of the Conservation Strategy to the Amendment is discussed in this Subchapter.

There were no responses to the Notice of Preparation (NOP) regarding biological resources.

ENVIRONMENTAL SETTING

The project site is situated in central Sonoma County (County) within the California Floristic Province. The County in general, has a Mediterranean climate. Valley floor portions of the project region are characterized by annual grasslands, foothill oak woodlands, intermittent streams, and seasonal wetlands. In lower elevations, annual grasslands, vernal pool associates, and riparian vegetation dominate.

The Amended Project Area is mostly urbanized, containing primarily developed residential, commercial, industrial, and public uses. For the majority of the Amended Project Area – not covered with impermeable surfaces, such as buildings and roadways – the vegetative community consists primarily of non-native grassland and landscaping. However, there are remaining areas supporting vestiges of the pre-development native vegetation, mainly within creeks and on vacant properties. Seasonal wetlands such as vernal pools, non-wetland waters, drainage ditches, creeks (Starr, Windsor, and East Windsor creeks, and their tributaries Gumview and Sotoyome creeks), oak woodland, riparian woodland, and native and ornamental trees can be found throughout the Amended Project Area.
**GENERAL BIOLOGICAL RESOURCES**

**Vegetation**

*Ruderal/Disturbed*

Most of the herbaceous vegetation on vacant parcels in the Amended Project Area consists of weedy, non-native species that have become established as a result of disturbance to the original vegetation and substrate from grazing and cultivation. Non-native grasslands are typically dominated by Italian ryegrass (*Lolium multiflorum*) and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). The dominance of these two grasses and the topography of the area indicate that water ponds on vacant parcels exist to some extent during the rainy season.

Non-native upland grasses likely to be present in the Amended Project Area include ripgut brome (*Bromus diandrus*), hare barley (*Hordeum murinum* ssp. *leporinum*), and soft chess (*Bromus hordeaceus*). Non-native grasslands adjacent to houses and commercial/industrial buildings are likely to support ruderal non-native plant species. Common non-native ruderal species in the Santa Rosa Plain that can be expected to occur in such areas include bindweed, smooth cat's-ea, broad-leaved filaree (*Erodium botrys*), burclover (*Medicago polymorpha*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), cut-leaf geranium (*Geranium dissectum*), hairy vetch (*Vicia villosa*), and spring vetch (*Vicia sativa*).

Grasses that are typically associated with drier non-native grasslands in the Santa Rosa Plain include slender wild oat (*Avena barbata*), soft chess, and foxtail fescue (*Vulpia myuros*). Other plant species known to occur in upland grasslands include crane's bill geranium (*Geranium molle*), English plantain (*Plantago lanceolata*), bindweed (*Convolvulus arvensis*), little hop clover (*Trifolium dubium*), strawberry clover (*Trifolium fragiferum*), smooth cat's-ea (*Hypochaeris glabra*), and curly dock (*Rumex crispus*). Few native forbs are anticipated to be found in the Amended Project Area, such as Turkey mullein (*Eremocarpus setigerus*), a native forb that is common in ruderal habitats, and Blue-eyed grass (*Sisyrinchium bellum*), a native plant species that grows in slightly moist to dry grasslands.

**Seasonal Wetlands**

Seasonal wetlands occur throughout the Amended Project Area in depressions, swales, and drainage ditches. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration of sufficient length to support vegetation adapted to anaerobic (oxygen-depleted) soil conditions. The surface soil of the swales stays saturated for short to extended periods from the winter through the late spring, due to an impermeable duripan layer of cemented illuvial silica roughly 20 to 40 inches below the soil surface. Seasonal wetlands include undefined and excavated depressions, swales, and drainages that are considered distinct from vernal pool habitat (though they support many of the same species).

Seasonal wetlands typically occur in natural depressions and swales and contain mostly annual native and non-native hydrophytic species. Wetland vegetation includes tall flat sedge (*Cyperus eragrostis*), water plantain (*Alisma sp.*), red willow (*Salix laevigata*), Himalayan blackberry (*Rubus discolor*), brown-headed rush (*Juncus phaeocephalus var. paniculatus*), pennyroyal (*Mentha pulegium*), water primrose (*Ludwigia sp.*), curly dock (*Rumex crispus*), Italian ryegrass, Mediterranean barley, semaphore grass (*Pleuropogon californicus*), rabbit-foot grass (*Polypogon monspeliensis*), prickly seed buttercup
(Ranunculus muricatus), toad rush (Juncus bufonius), sedge (Carex sp.), and purple loosestrife (Lythrum hyssopifolium).

Seasonal wetlands in the County provide important breeding habitat for amphibians such as the Pacific treefrog (Pseudacris regilla) and western toad (Bufo boreas); only the Pacific treefrog was observed on the project site. Some grassland species also rely on these seasonal wetlands as a source of water and food. Seasonal wetlands may also be used as a water source, on a seasonal basis, for local wildlife. Species that may utilize seasonal wetlands include red-winged blackbird (Agelaius phoeniceus) and killdeer. Various waterbird species are attracted to seasonal wetlands and include mallard (Anas platyrhynchos), greater yellowlegs (Tringa melanoleuca), Wilson’s snipe (Gallinago delicata), great egret (Ardea alba), and great blue heron (Ardea herodias). The Amended Project area occurs outside of the known ranges of the California tiger salamander (CTS; Ambystoma californiense) and northern red-legged frog (Rana aurora aurora).

Vernal Pools

Vernal pools are a unique plant community occurring in low-lying depression areas underlain by a hardpan (clay) substrate. The clay hardpan creates a localized perched water table. Rainwater collected in these depressions drains much more slowly than in swale depressions without this hardpan layer. The surface waters of vernal pools persist well after the normal winter rains have ceased; as the winter waters recede, endemic plant species tolerant of an environment that ranges from inundation to desiccation (dry) conditions dominate. Plant species complete their life cycle and flower as the vernal pool waters recede, often forming concentric circles and brilliant displays of color.

Vernal pools may be small (a few square feet) or quite large (covering several acres). They are limited geographically due to the strict combination of soils, hydrology, and climate required for their formation. Vernal pools are scattered throughout the Windsor area, and could be found on vacant parcels within the Amended Project Area. The Huichica, Wright, and Oear Lake soil series have clay lenses in their profiles and typically support vernal pools. While a complete and accurate inventory has not been conducted to date, there are several known locations such as the Shiloh Road pools west of the Added Area, which have been identified as part of studies on rare and endangered species.

Potential Jurisdictional Wetlands and Waters of the US

Waters of the US include wetlands (e.g., special aquatic sites such as seasonal ponds and marshes) and other jurisdictional waters, such as lakes, ponds, rivers, and intermittent drainages. Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The majority of jurisdictional wetlands meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology.

Non-wetland Waters of the United States

Unvegetated portions of drainage ditches within the Amended Project Area are potential jurisdictional non-wetland waters of the US. Wildlife species known to occur in the area include Pacific treefrog larvae, California quail (Callipepla californica), song sparrow (Melospiza melodia), and red-winged blackbird. Red-winged blackbirds forage in the blackberry thickets and may nest in the ruderal vegetation.
**Oak Woodland**

The ecological and landscape importance of oak woodlands/hardwood habitats has become increasingly well recognized in California over past decades. According to State public resource agency sources, hardwoods, including oaks of the genus *Quercus*, and hardwood-dominated habitats are vitally important to fish, wildlife, and natural resources of the State; hardwoods support a wide variety of wildlife species by providing habitat, preventing erosion, shading waterways, and contributing nutrients and food-chain organisms to ecological systems. California’s hardwood habitats provide forage and breeding habitat for 331 species of vertebrates; 32 species of birds, and 39 species. Increases in acorn production usually equate to increases in survival for deer and other species (California Department of Fish and Game (CDFG) 1994; California Fish and Game Commission (CFGC)/ State Board of Forestry (SBF) 1994).

The CFGC and the SBF in 1994 adopted a joint policy statement on hardwoods, recognizing hardwood resources as an important natural and economic resource and generally encouraging long-term conservation of hardwood habitats (CFGC and SBF 1994). Oak woodland habitat is found throughout the Amended Project Area, and includes black oak (*Quercus kelloggii*), valley oak (*Quercus lobata*), and coast live oak, eucalyptus (*Eucalyptus sp.*), California buckeye, willow (*Salix sp.*), and California bay (*Umbellularia californica*) as overstory, and annual grass, poison oak (*Toxicodendron diversilobum*), and forb understory.

**Riparian**

Riparian habitats support the greatest diversity of wildlife of any habitat type and provide critical resources (e.g., nesting, denning, resting areas, thermal cover, and water) for many species that forage extensively in adjacent grasslands or croplands. Riparian habitat provides essential thermal and visual cover for terrestrial, avian, and aquatic wildlife. The majority of the potential non-aquatic special-status wildlife species in the Amended Project Area require riparian habitat for at least some portion of their life cycle. In developed areas, riparian corridors are usually the only remaining “natural” habitats; they will therefore constitute or support nearly all of the future biological resources of all parts of the Amended Project Area not zoned for agriculture or conservation areas.

The natural creeks within the Amended Project Area support significant riparian woodland, although it is generally confined to relatively narrow strips along the channel edges. The creeks within the Amended Project Area are intermittent “blue-line” streams identified on the United States Geological Survey (USGS) quadrangle. All streams are crossed by access roads. Some portions are incised channels lined with a defined bed and bank. Creeks support a seasonal aquatic environment with algae, aquatic moss, and water worn angular to rounded rocks. Creek channels are intermittent or perennial, and generally support fairly dense riparian woodland, and are generally characterized by willows and valley oak trees of varying ages, growing along the water’s edge. Mature native trees lining creeks include coast live oak (*Quercus agrifolia*), Oregon ash (*Fraxinus latifolia*), valley oak (*Quercus lobata*), and California buckeye (*Aesculus californica*). Young to mature valley oak trees can make up most of the riparian canopy that extends roughly 50-100 feet from the top of the creek bank. The understory is generally dominated by non-native perennial vines such as English ivy (*Hedera helix*), Himalayan blackberry (*Rubus discolor*), and periwinkle (*Vinca major*).

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Freshwater Marsh
Freshwater marsh habitat is typically associated with the margins of rivers, streams, or ponds, but can form anywhere shallow, slow moving perennial water is present. In the Amended Project Area, a freshwater marsh could occur along portions of the numerous creeks.

Plant species common to freshwater marsh habitats include cattails (*Typha latifolia*), tule (*Scirpus californicus*), sedges and umbrella sedges, rushes, water primrose (*Ludwigia peploides*), water smartweed (*Polygonum amphibium*), parrot feather (*Myriophyllum aquaticum*), pennyroyal (*Mentha pulegium*), verbena (*Verbena litoralis*), common yellow monkey flower (*Mimulus guttatus*), and smooth cocklebur (*Xanthium strumarium*). Freshwater marshes provide important breeding and foraging habitat for a wide variety of local wildlife such as herons, egrets, muskrats (*Ondatra zibethicus*), raccoon, red-winged blackbirds (*Agelaius phoenicus*), and a wide variety of waterfowl.

Wildlife
Wildlife habitat provides cover, food, and water necessary to meet the biological requirements of one or more individuals of an animal species. Changes in habitats and changes in essential habitat elements that relate to reproduction, foraging, and cover requirements may impact abundance, distribution, diversity, and interactions between wildlife species.

A wide variety of water birds use creeks in the region, such as mallard, American wigeon (*Anas Americana*), green-winged teal (*Anas crecca*), bufflehead (*Bucephala albeola*), pied-billed grebe (*Podilymbus podiceps*), and black-crowned night heron (*Nycticorax nycticorax*). Riparian Woodland Habitat Species
Riparian woodlands in the County support a wide diversity of native wildlife, but species composition varies depending on the dominant tree cover. Wildlife species include acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttalli*), bushtit (*Psaltriparus minimus*), western bluebird (*Sialia mexicana*), California towhee (*Pipilo crissalis*), and western scrub-jay (*Aphelocoma californica*). Other riparian woodland species that occur within the Amended Project Area include red-shouldered hawk (*Buteo lineatus*), red-breasted sapsucker (*Sphyrapicus ruber*), spotted towhee (*Pipilo maculatus*), Pacific-slope flycatcher (*Empidonax occidentalis*), and ash-throated flycatcher (*Myiarchus cinerascens*). Examples of other birds that occur in oak dominated riparian woodlands in the region include Cooper’s hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), oak titmouse (*Baeolophus inornatus*), and white-breasted nuthatch (*Sitta carolinensis*). Mule deer (*Odocoileus hemionus*) may use the riparian woodland for shelter and foraging habitat.

Grassland Habitat Species
Wildlife species commonly found in grassland habitats found on vacant parcels include western fence lizard (*Sceloporus occidentalis*), black-tailed jackrabbit (*Lepus californicus*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), killdeer (*Charadrius vociferus*), and violet-green swallow (*Tachycineta thalassina*). Botta’s pocket gopher (*Thomomys bottae*) burrows have been observed in local grasslands. Other wildlife species that occur in open non-native grassland habitat in the region may utilize the grassland habitat in the Amended Project Area. Some of the other more common bird species that could occur in the grassland habitat in the region include American kestrel (*Falco sparverius*), savannah sparrow (*Passerculus sandwichensis*), western meadowlark
(Sturnella neglecta), Canada goose (Branta canadensis), American pipit (Anthus rubescens), barn swallow (Hirundo rustica), and cliff swallow (Petrochelidon pyrrhonota). Some of the more common mammal species that could inhabit the grasslands include California vole (Microtus californicus), striped skunk (Mephitis mephitis), coyote (Canis latrans), and black-tailed deer (Odocoileus hemionus columbianus). Although often present in grassland habitat, California ground squirrels (Spermophilus beecheyi) are not typically abundant on the Santa Rosa Plain and may have been eradicated from the area.

Tree Habitat Species

Native and ornamental trees provide roosting, foraging, and nesting habitat for many birds. Birds of prey (i.e., hawks, owls) and songbirds could nest in Amended Project Area trees, including oak, eucalyptus, pine, palm, and fruit trees. Such species include European starling (Sturnus vulgaris), red-winged blackbird, mourning dove (Zenaida macroura), northern mockingbird (Mimus polyglottos), American crow (Corvus brachyrhynchos), brown-headed cowbird (Molothrus ater), and house sparrow (Passer domesticus). Other bird species in the region that utilize ornamental trees include the loggerhead shrike (Lanius ludovicianus), western kingbird (Tyrannus verticalis), Brewer’s blackbird (Euphagus cyanocephalus), rock pigeon (Columba livia), black phoebe (Sayornis nigricans), and the house finch (Carpodacus mexicanus).

Seasonal Wetland Species

Seasonal wetlands in the County provide important breeding habitat for amphibians such as the Pacific treefrog (Pseudacris regilla) and western toad (Bufo boreas). Some grassland species also rely on these seasonal wetlands as a source of water and food. The seasonal wetlands may also be used as a water source, on a seasonal basis, for local wildlife. Species that may utilize the seasonal wetlands include red-winged blackbird (Agelaius phoeniceus) and killdeer. Various water bird species are attracted to seasonal wetlands and include mallard (Anas platyrhynchos), greater yellowlegs (Tringa melanoleuca), Wilson’s snipe (Gallinago delicata), great egret (Ardea alba), and great blue heron (Ardea herodias). The project site occurs outside of the known ranges of the CTS and northern red-legged frog (Rana aurora aurora).

Developed

Structures in developed areas can provide habitat for birds or bats. Structures such as barns and bridges could provide nesting habitat for swallows, black phoebe, and other birds. Pallid bats (Antrozous pallidus) and other bat species could also roost in the ranch buildings.

Aquatic Species

Various species of native and introduced freshwater fish occur in creeks within the County. The low gradient portions of the creeks tend to be dominated by warm water fishes such as the California roach (Lavinia symmerticus) and threespine stickleback (Gasterosteus aculeatus). Non-native fish common in the County’s creeks include the common carp (Cyprinus carpio), western mosquitofish (Gambusia affinis), and largemouth bass (Micropterus salmoides). Steelhead (Oncorhynchus mykiss), a special-status species, migrate up the larger creeks in the County to their spawning sites which tend to be in foothill areas just east of the Santa Rosa Plain.

These creeks are generally not suitable as breeding sites for native amphibians due to the presence of predatory fishes including both native and non-native species. The American bullfrog (Rana catesbeiana), a non-native frog, is present in many of the creeks in the County and is likely to occur in Amended Project Area creeks. The Pacific pond turtle
(Actinemys marmorata) occurs in aquatic habitats in the County, but it has not been documented locally.

**Wildlife Movement**

Terms such as habitat corridors, linkages, crossings, and travel routes are used to describe physical connections that allow wildlife to move between patches of suitable habitat in undisturbed landscapes, as well as environments fragmented by urban development. Wildlife corridors are essential to the regional ecology of a species because they provide avenues of genetic exchange and allow animals to access alternative territories as dictated by fluctuating population densities. Fragmentation of open space areas by urbanization creates “islands” of wildlife habitat that are more or less isolated from each other. Wildlife corridors are typically relatively small, linear habitats that connect two or more habitat patches that would otherwise be fragmented or isolated from one another.

The Windsor, East Windsor, and Sotoyome creeks, as well as other tributaries and drainages provide valuable corridors within the Amended Project Area, except where they are cut off by roadways and culverts.

**SPECIAL STATUS RESOURCES**

Special-status plants and animals include plants on the:

- CNPS List (List 1A, 1B, and 2)
- CDFG Species of Special Concern
- State or federal candidate species
- Species listed by the state and/or federal government as rare, threatened, or endangered
- Species “fully protected” by the state from taking or possession

Special status plant and animal species identified on CNDDDB (Rarefind 2009) are mapped on Figure 6.2-1.

Besides referring to the injury or death of an animal, the term “take” includes the disruption of nests, burrows, or dens during the breeding season. CDFG Species of Special Concern are species not listed as threatened or endangered by the state, but are species whose breeding populations in the state have declined severely. In the near future, some of these species could be added to state or federal lists of threatened or endangered species.

In general, the principal reason an individual taxon (species, subspecies, or variety) is given such recognition is the documented or expected decline or limitation of its population size, geographical extent, and/or distribution. When the USFWS lists a species as threatened or endangered under the Federal Endangered Species Act (FESA), areas of habitat considered essential to its conservation and survival may be designated as critical habitat. These areas may require special consideration and/or protection due to their ecological importance. Although critical habitat may be designated on state or private lands, activities on them are not restricted unless there is federal involvement or direct impacts to listed species are expected.

Sensitive biological resources include those that are afforded special protection through the California Fish and Game Code (CFGC), the FESA, the California Endangered Species Act (CESA), and/or the Federal Clean Water Act (CWA). Sensitive biological resources in the Amended Project Area also include those afforded protection under the Town of Windsor General Plan (General Plan).
6.2 BIOLOGICAL RESOURCES

FIGURE 6.2-1
BIOLOGICAL RESOURCES IN THE VICINITY OF THE AMENDED PROJECT AREA

Source: The Ervin Consulting Group, 2009
Data: CNDDB GIS, 10/6/2009;
LSA Associates, 2009

Town of Windsor, CA Redevelopment Plan Fifth Amendment
Prepared 10/29/2009 by
THE ERVIN CONSULTING GROUP

1 in = 0.5 miles
Miles

WINDSOR RIVER RD
WINDSOR RD

ReDEVELOPMENT AGENCY OF THE TOWN OF WINDSOR
WINDSOR REDEVELOPMENT PROJECT
PROPOSED FIFTH AMENDMENT DRAFT EIR
**Special-Status Animals**

Special-status animal species that could occur within the vicinity of the Amended Project Area were identified from lists identified by the USFWS and the CNDDB (10/6/2009).\(^3\) The CNDDB has records of special status species occurring on the Healdsburg USGS 7.5 minute quadrangle containing the Amended Project Area. Based upon the evaluation of species potentially occurring in the Healdsburg quadrangle, thirteen animal species were identified as potentially having moderately suitable habitat in the Amended Project Area. Special status animal species are listed in Table 6.2-1.

<table>
<thead>
<tr>
<th>Species</th>
<th>Status(^4)</th>
<th>Habitat</th>
<th>Potential for Occurrence Within the Amended Project Area(^5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
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<tr>
<td><strong>California freshwater shrimp</strong></td>
<td>FE CE</td>
<td>Low gradient freshwater creeks with abundant riparian cover, frequenting shallow backwaters; where banks are structurally diverse with undercut banks, exposed roots, or overhanging woody debris or vegetation</td>
<td><strong>Low.</strong> Local creeks are not likely to support this species. Closest known occurrences are approximately 4 miles north in the Franz Creek and 6 miles southwest in the Green Valley Creek.</td>
</tr>
<tr>
<td><em>Syncaris pacifica</em></td>
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<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Steelhead – Central California Coast ESU</strong></td>
<td>FE CE</td>
<td>Spawns and rears in clear coastal creeks. Cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.</td>
<td><strong>Low.</strong> Urban warm water creeks do not provide suitable spawning or rearing habitat. Suitable aquatic habitat may occur during periods of high water. Closest known occurrence is in southern reaches of Windsor Creek.</td>
</tr>
<tr>
<td><em>Oncorhynchus mykiss</em></td>
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</tr>
<tr>
<td><strong>Navarro roach</strong></td>
<td>FE -</td>
<td>Found in warm intermittent streams and cold, well-aerated streams.</td>
<td><strong>Low.</strong> Area creeks are not likely to support this species. Closest known occurrence is approximately 2.6 miles northwest in the Russian River.</td>
</tr>
<tr>
<td><em>Lavina symmetricus navarroensis</em></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Russian River tule perch</strong></td>
<td>FE -</td>
<td>Found in clear, flowing water with abundant cover with deep (&gt;1 meter) pool habitat in the Russian River and tributaries. Intolerant of polluted or brackish water.</td>
<td><strong>Low.</strong> Area creeks are not likely to support this species. Closest known occurrence is approximately 2.2 miles northwest in the Russian River.</td>
</tr>
<tr>
<td><em>Hysterocarpus traski pomo</em></td>
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</tr>
</tbody>
</table>

\(^3\) CDFG, Biogeographic Data Branch. Digital spatial information updated 10/6/2009.

\(^4\) Animal Status Codes:

- **FE** Federally-listed as an endangered species
- **FT** Federally-listed as a threatened species
- **FC** Federally Listed as a species of concern
- **CE** State-listed as an endangered species
- **CT** State-listed as a threatened species
- **CFP** State-listed as a fully protected
- **CSC** State Species of Special Concern
- **CIT** State protected from incidental take (§3503.5)

\(^5\) Nearest records are based on CNDDB (2009) occurrences unless otherwise noted.
### 6.2 BIOLOGICAL RESOURCES

#### Proposed Fifth Amendment Draft EIR

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Habitat</th>
<th>Potential for Occurrence Within the Amended Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coho salmon-Central California Coast ESU</strong>&lt;br&gt;<em>(Oncorhynchus kisutch)</em></td>
<td>FT CT</td>
<td>Coastal streams and rivers, including the Russian River, and Windsor Creek.</td>
<td>Low. Suitable aquatic habitat may occur when the tributary to Starr Creek is at its high water level. There is no suitable spawning habitat. The Russian River watershed is designated critical habitat for Coho salmon.</td>
</tr>
<tr>
<td><strong>California costal Chinook salmon ESU</strong>&lt;br&gt;<em>(Oncorhynchus tshawytscha)</em></td>
<td>FT CT</td>
<td>Central and northern California coastal rivers and streams. Known from the Russian River.</td>
<td>Low. Suitable aquatic habitat may occur when creeks are at high water levels. There is no suitable spawning habitat.</td>
</tr>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Northern red-legged frog</strong>&lt;br&gt;<em>Rana aurora aurora</em></td>
<td>- CSC</td>
<td>Inhabits pools along slow flowing sections of creeks, ponds, and marshes.</td>
<td>Low. Suitable breeding habitat may be present, however, this species is not on the USFWS species list for the Healdsburg quadrangle, nor are there any current or historic species occurrences within a minimum of 10-miles.</td>
</tr>
<tr>
<td><strong>Foothill yellow-legged frog</strong>&lt;br&gt;<em>Rana boylii</em></td>
<td>- CSC</td>
<td>Fast-moving streams and rivers in chaparral, forests, and woodlands. Open rocky or gravelly banks of clear creeks with shallow backwaters for breeding habitat.</td>
<td>Low. Known to occur in foothill creeks east of Santa Rosa. Suitable habitat may be present. Closest known occurrence in Porter Creek, outside the Amended Project Area.</td>
</tr>
<tr>
<td><strong>California tiger salamander (CTS)</strong>&lt;br&gt;<em>Ambystoma californiense</em></td>
<td>FE CSC</td>
<td>Breeds in playa pools, ponds, and stock ponds. Spends summer and early fall in uplands surrounding breeding sites, taking refuge in small mammal burrows or other underground cover.</td>
<td>Low. Not likely to occur; no recent or historical natural occurrences in the northern portion of the County. Closest known occurrence is approximately 6.9 miles south of the Amended Project Area. Santa Rosa Plain Conservation Strategy designates this area as one where CTS are considered unlikely to occur.</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Pacific pond turtle</strong>&lt;br&gt;<em>Actinemys marmorata</em></td>
<td>- CSC</td>
<td>Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and adjacent grasslands or other open habitat for egg-laying.</td>
<td>Low-moderate. Suitable habitat in area creeks.</td>
</tr>
<tr>
<td><strong>Coast horned lizard</strong>&lt;br&gt;<em>Phrynosoma coronatum frontale</em></td>
<td>- CSC</td>
<td>Found in open sunny habitats including grasslands, scrub, and open woodlands that support native ant populations.</td>
<td>Low. Not expected to occur in the vicinity due to general lack of cover and habitat disturbance from grazing.</td>
</tr>
<tr>
<td>Species</td>
<td>Status</td>
<td>Habitat</td>
<td>Potential for Occurrence Within the Amended Project Area</td>
</tr>
<tr>
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<td>------------------------------------------------------</td>
</tr>
<tr>
<td><strong>White-tailed kite</strong>&lt;br&gt; <em>Elanus leucurus</em></td>
<td>- CFP</td>
<td>Forages over open habitats, such as grasslands, pastures, and fields with good populations of voles and other small rodents. Nests in isolated trees and along the edges of woodlands near open areas.</td>
<td><strong>Moderate.</strong> Mature trees provide nesting habitat and grasslands in vacant parcels are suitable foraging habitat. No kites were observed during recent surveys, but it has the potential to occur.</td>
</tr>
<tr>
<td><strong>Northern harrier</strong>&lt;br&gt; <em>Circus cyaneus</em></td>
<td>- CSC</td>
<td>Nests and forages in meadows, grasslands, open rangeland, and fresh or saltwater marshes.</td>
<td><strong>Low.</strong> Limited grasslands on vacant parcels provide suitable nesting and foraging habitat. Nesting has not been reported in the vicinity.</td>
</tr>
<tr>
<td><strong>Cooper’s hawk</strong>&lt;br&gt; <em>Accipiter cooperii</em></td>
<td>- CSC</td>
<td>Nests and forages in woodlands, often with open areas or open canopy and near water. Also known to forage in open grasslands or shrubland.</td>
<td><strong>Low-moderate.</strong> Expected to occur as a transient and winter visitor, may nest within riparian woodland habitat or ornamental trees in the vicinity.</td>
</tr>
<tr>
<td><strong>Ferruginous hawk</strong>&lt;br&gt; <em>Buteo regalis</em></td>
<td>- CSC (wintering)</td>
<td>Forages in open country and ranch lands. Occurs in California only as a winter visitor.</td>
<td><strong>Low.</strong> May occur as a winter visitor. Not a breeding bird in this region.</td>
</tr>
<tr>
<td><strong>Merlin</strong>&lt;br&gt; <em>Falco columbarius</em></td>
<td>- CSC (wintering)</td>
<td>Forages in open country, sea coasts, and bay lands. Occurs in California only as a winter visitor and migrant.</td>
<td><strong>Low.</strong> May occur as a migrant or winter visitor. Not a breeding bird in this region.</td>
</tr>
<tr>
<td><strong>Prairie falcon</strong>&lt;br&gt; <em>Falco mexicanus</em></td>
<td>- CSC (nesting)</td>
<td>Forages in open country and deserts. Nests on cliffs.</td>
<td><strong>Low.</strong> Limited foraging habitat in the vicinity. No suitable nesting habitat occurs.</td>
</tr>
<tr>
<td><strong>Long-billed curlew</strong>&lt;br&gt; <em>Numenius americanus</em></td>
<td>- CSC</td>
<td>Forages and nests in marshes, agricultural fields, and grasslands</td>
<td><strong>Low.</strong> May forage on grasslands in vicinity during the winter, but does not breed in the region.</td>
</tr>
<tr>
<td><strong>Western burrowing owl</strong>&lt;br&gt; <em>Athene cunicularia hypogeae</em></td>
<td>- CSC</td>
<td>Nests in burrows in grasslands and woodlands; often associated with ground squirrels. Will also nest in artificial structures (culverts, concrete debris piles, etc.).</td>
<td><strong>Unlikely.</strong> May forage on grasslands during winter, but does not breed in the region. Suitable burrows likely not present in the vicinity due to absence of ground squirrels. Rare in the County.</td>
</tr>
<tr>
<td><strong>Short-eared owl</strong>&lt;br&gt; <em>Asio flammeus</em></td>
<td>- CSC</td>
<td>Inhabits open, treeless areas with low perches and dense vegetation for roosting and nesting.</td>
<td><strong>Unlikely.</strong> May forage on grassland within the Amended Project Area during winter, but does not breed in the region.</td>
</tr>
<tr>
<td><strong>Vaux’s swift</strong>&lt;br&gt; <em>Chaetura vauxi</em></td>
<td>- CSC</td>
<td>Nests in large hollow trees. Forages in most habitats but prefers rivers and lakes.</td>
<td><strong>Moderate.</strong> May nest in the Amended Project Area in the large snags within riparian woodland along creeks. May forage on vacant sites.</td>
</tr>
<tr>
<td>Species</td>
<td>Status²</td>
<td>Habitat</td>
<td>Potential for Occurrence Within the Amended Project Area⁵</td>
</tr>
<tr>
<td>-------------------------------</td>
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<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Purple martin Progne subis</td>
<td>- CSC</td>
<td>Inhabits woodlands and nests in tree snags and abandoned woodpecker cavities and human-made structures such as under bridges and in structures.</td>
<td><strong>Moderate.</strong> Occupies a variety of habitats, especially during migration, and is tolerant of urban development. However, there may not be sufficient open habitat in the area to sustain this species. May nest in large snags in riparian woodland. May forage over vacant areas.</td>
</tr>
<tr>
<td>California horned lark Eremophila alpestris actia</td>
<td>- CSC</td>
<td>Forages and nests in open grasslands and barren fields.</td>
<td><strong>Low.</strong> Suitable breeding habitat present, but not known to breed in the vicinity.⁶</td>
</tr>
<tr>
<td>Loggerhead shrike Lanius ludovicianus</td>
<td>- CSC</td>
<td>Found in grasslands and open shrub or woodland communities. Nests in dense shrubs or trees and forages in scrub, open woodlands, grasslands, and croplands, but avoids urban areas. Frequently uses fences, posts, and utility lines as hunting perches.</td>
<td><strong>Low.</strong> May forage and nest in the trees in the vicinity, but the Amended Project Area is probably too urban for this species. No shrikes observed during recent surveys, but likely to occur in the vicinity.</td>
</tr>
<tr>
<td>Yellow warbler Dendroica petechia</td>
<td>- CSC</td>
<td>Nests in extensive willow riparian woodlands.</td>
<td><strong>Moderate.</strong> May nest in riparian woodland in the vicinity.</td>
</tr>
<tr>
<td>Yellow-breasted chat Icteria virens</td>
<td>- CSC</td>
<td>Nests in extensive willow riparian woodlands with dense understory.</td>
<td><strong>Moderate.</strong> May nest in riparian woodland in the vicinity.</td>
</tr>
<tr>
<td>Tricolored blackbird Agelaius tricolor</td>
<td>- CSC</td>
<td>Breeds near fresh water, preferably in emergent wetland. Nests in dense vegetation near open water, forages in grasslands and agricultural fields.</td>
<td><strong>Unlikely.</strong> May forage in the vicinity in grasslands. No suitable nesting habitat likely present.</td>
</tr>
<tr>
<td>American peregrine falcon Falco peregrinus anatum</td>
<td>FD CE</td>
<td>Nests in cliffs and outcrops usually adjacent to lakes.</td>
<td><strong>Absent.</strong> Suitable nesting and foraging habitat does not occur in the vicinity.</td>
</tr>
<tr>
<td>Bald eagle Haliaeetus leucocephalus (nesting and wintering)</td>
<td>FD CE</td>
<td>Nests and forages on inland lakes, reservoirs, and rivers.</td>
<td><strong>Absent.</strong> Suitable nesting and foraging habitat does not occur in the vicinity.</td>
</tr>
<tr>
<td>Northern spotted owl Strix occidentalis caurina</td>
<td>FT -</td>
<td>Dense, old growth, mixed conifer forests</td>
<td><strong>Absent.</strong> Suitable habitat does not occur in the vicinity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Habitat</th>
<th>Potential for Occurrence Within the Amended Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern goshawk</strong></td>
<td>- CSC</td>
<td>Mid and high elevation dense conifer forests, and low elevation riparian foothill woodlands with adjacent open areas. Nests in medium to large diameter trees with dense foliage.</td>
<td>Low. The range of this species is mostly in the higher elevation.</td>
</tr>
<tr>
<td><strong>Sharp-shinned hawk</strong></td>
<td>- CSC</td>
<td>Nests in riparian growths of deciduous trees and live oaks.</td>
<td>Low-moderate. Valley oaks and other trees may provide suitable nesting sites for this species.</td>
</tr>
<tr>
<td><strong>Golden eagle</strong></td>
<td>FC CFP</td>
<td>Foothills, arid plateaus, and mountains with sparse vegetation. Nests in cliffs with overhanging ledges or large trees in open areas. Sensitive to human disturbance.</td>
<td>Unlikely. Suitable nesting habitat is not present in the vicinity.</td>
</tr>
<tr>
<td><strong>Great blue heron</strong></td>
<td>- CSC</td>
<td>Colonial nesters in riparian habitat or near water.</td>
<td>Low. No rookeries recorded or identified in the vicinity.</td>
</tr>
<tr>
<td><strong>Long-eared owl</strong></td>
<td>- CSC</td>
<td>Dense riparian oak thickets. Sensitive to riparian habitat fragmentation and urban development.</td>
<td>Unlikely. Riparian habitat in the vicinity is only moderately dense, and the vicinity is located in a mostly urban setting.</td>
</tr>
<tr>
<td><strong>Red-tailed hawk</strong></td>
<td>- CIT</td>
<td>Open stands of deciduous and coniferous forests; frequents croplands and pastures.</td>
<td>Moderate. Nesting trees are available throughout in the vicinity, though nesting has not been reported.</td>
</tr>
<tr>
<td><strong>Red-shouldered hawk</strong></td>
<td>- CIT</td>
<td>Dense riparian woodland, hardwood/conifer habitats adjacent to swamps, marshes, and wet meadows.</td>
<td>Moderate. Nesting trees are available throughout the vicinity, though nesting has not been reported.</td>
</tr>
<tr>
<td><strong>California yellow warbler</strong></td>
<td>- CSC</td>
<td>Nests in riparian areas dominated by willows, cottonwoods, sycamores, alders, or mature chaparral; may use urban areas near waterways.</td>
<td>Unlikely. Suitable nesting and forage habitat does not occur on the vicinity.</td>
</tr>
<tr>
<td><strong>American kestrel</strong></td>
<td>- CIT</td>
<td>Nests in cavities in large trees near open areas.</td>
<td>Moderate. Suitable forage and nesting habitat occurs in the vicinity.</td>
</tr>
<tr>
<td><strong>Yellow breasted chat</strong></td>
<td>- CSC</td>
<td>Valley foothill riparian, desert riparian and coastal foothills. Nests in dense shrubs along rivers or streams, and seeks cover in densely vegetated riparian thickets.</td>
<td>Unlikely. Suitable nesting and forage habitat does not occur in the vicinity.</td>
</tr>
<tr>
<td><strong>Osprey</strong></td>
<td>- CSC</td>
<td>Nest on exposed treetops or other man made structures. Forage over clean open waters.</td>
<td>Low. Suitable roosting and breeding habitat for this species does not occur in the vicinity.</td>
</tr>
</tbody>
</table>
6.2 BIOLOGICAL RESOURCES

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Habitat</th>
<th>Potential for Occurrence Within the Amended Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Townsend’s Pacific big-eared bat</td>
<td>FSC</td>
<td>Roosts in old buildings, mines, and caves; forages over various habitat types.</td>
<td>Moderate. Potential roosting habitat occurs in mature oak trees and structures, and foraging habitat may occur in grasslands and oak woodlands.</td>
</tr>
<tr>
<td>Corynorhinus townsendii</td>
<td>CSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pallid bat</td>
<td>-</td>
<td>Roosts in crevices in rock outcrops, in the expansion joints under bridges and occasionally in old buildings; forages on large terrestrial insects in open habitats.</td>
<td>Moderate. May forage and roost in the vicinity. Roosting habitat may occur in the trees and old buildings in the vicinity. Closest known occurrence is approximately 4.7 miles northeast of the Amended Project Area.</td>
</tr>
<tr>
<td>Antrozous pallidus</td>
<td>CSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Badger</td>
<td>-</td>
<td>Open country, ranch lands, pasture, and open woodlands with friable soils and abundant small mammal populations</td>
<td>Low. Could potentially occur in the grasslands in the vicinity, but is generally rare in the County.</td>
</tr>
<tr>
<td><em>axidea taxus</em></td>
<td>CSC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: The Ervin Consulting Group, 2009

**California Tiger Salamander**

The Sonoma County Distinct Population Segment (DPS) of the California Tiger Salamander (CTS) is a federally-listed endangered species and is also a California species of special concern. The CTS breed primarily in temporary water bodies such as playa pools, but will also breed in stock ponds, ditches, and other water bodies if they lack fish. CTS spend the majority of their lives underground in the burrows of rodents, such as the California ground squirrel and Botta’s pocket gopher, or in similar underground retreats. Both aquatic and terrestrial habitats are therefore essential to the persistence of California tiger salamander populations. Although this species occurs in the County, the northern-most known occurrence is more than 5 miles south of the Amended Project Area. The Amended Project Area is located in the northern portion of the Santa Rosa Plain, but is currently not within any of the Conservation Areas that were designated for the preservation and recovery of CTS in the Conservation Strategy. The Amended Project Area is shown in the Santa Rosa Plain Conservation Strategy Map (Strategy Figure 3 dated April 16, 2007) as an area where the presence of CTS is not likely and mitigation for the CTS is not required.

**Special-Status Plants**

The Amended Project Area is located in the northern portion of the Conservation Strategy, although no portions of the Amended Project Area have been designated as sensitive resources. Other portions of the Amended Project Area potentially support federally-listed plants or suitable wetland habitat for these plants. In particular, the Sanderson Parcel is shown in the Santa Rosa Plain Conservation Strategy Map as an area where mitigation for federally-listed plants may be required if these species or suitable habitat are present.

Plant species that potentially occur in the Amended Project Area include species that occur in seasonal wetlands or vernal pools, grasslands, riparian woodland, and freshwater marsh.

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habitats. Some of the potentially occurring plant species occur in freshwater marsh habitats that may or may not be present along creek channels.

Special-status plant species that could occur within the vicinity of the Amended Project Area were identified from lists by the CNDDB (Rarefind, 2009) and the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2009). 40 special-status plant species may occur in the vicinity of the Amended Project Area. Table 6.2-2 lists the 40 species and describes each species’ protective status, general habitat requirement, and blooming period, as well as the likelihood for that species to occur in the Amended Project Area.

### Table 6.2-2
**Special-Status Plant Species Potentially Occurring in the Amended Project Area**

<table>
<thead>
<tr>
<th>Species</th>
<th>Status (^8)</th>
<th>Habitat</th>
<th>Bloom Period</th>
<th>Potential for Occurrence within the Amended Project Area (^9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sonoma alopecurus&lt;br&gt; <em>Alopecurus aequalis var. sonomensis</em></td>
<td>FE - 1B</td>
<td>Freshwater marshes, mesic areas, and riparian scrub. Known from a few occurrences in Sonoma and Marin Counties. Elevation 5-360 meters</td>
<td>May-Jun</td>
<td>Low. Potential to occur along creeks if riparian scrub or freshwater marsh habitat is present near channel. Closest known occurrence is approximately 6 miles from the Amended Project Area; last observed in 1972. There are four other occurrences within a 10-mile radius of the Amended Project Area, and two of these are presumed to be extirpated.</td>
</tr>
<tr>
<td>Napa false indigo&lt;br&gt; <em>Amorpha californica var. Napensis</em></td>
<td>- 1B</td>
<td>Openings in broadleaved upland forest, chaparral, and cismontane woodland. Elevation 150-2000 meters</td>
<td>Apr-Jul</td>
<td>Low. Potential to occur along creeks in riparian woodland. Closest known occurrence is approximately 5.0 miles from the Amended Project Area; last observed in 1929. There are five other occurrences within a 10-mile radius of the Amended Project Area, but many of these are not specifically mapped and are historical.</td>
</tr>
<tr>
<td>Bent-flowered fiddleneck&lt;br&gt; <em>Amsinckia lunaris</em></td>
<td>- 1B</td>
<td>Cismontane woodland and valley and foothill grassland. Elevation 50-500 meters.</td>
<td>Mar-Jun</td>
<td>Low. Potential to occur in grasslands on vacant parcels. Closest known occurrence is &gt; 10-miles from the Amended Project Area. Not observed in the vicinity.</td>
</tr>
<tr>
<td>The Cedars manzanita&lt;br&gt; <em>Arctostaphylos bakeri ssp. sublaevis</em></td>
<td>CR 1B</td>
<td>In serpentine chaparral and Sargent cypress woodland (closed-cone coniferous forest); typically in canyons and on slopes. Elevation 275-600 meters</td>
<td>Feb-May</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
</tbody>
</table>

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8 Plant Status Codes:
- FE Federally Endangered
- FT Federally Threatened
- CE California Endangered
- CR California Rare
- X No status
- 1A California Native Plant Society (CNPS): species presumed extinct
- 1B CNPS plant considered rare, threatened, or endangered in California and elsewhere
- 2 CNPS plant considered rare, threatened, or endangered in California but more common elsewhere

9 Nearest records are based on CNDDB (2009) occurrences unless otherwise noted.
<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Habitat</th>
<th>Bloom Period</th>
<th>Potential for Occurrence within the Amended Project Area</th>
</tr>
</thead>
</table>
| **Sonoma manzanita**  
*Arctostaphylos canescens ssp. sonomensis* | -  
|CE  
|1B | Chaparral and lower montane coniferous forest. Sometimes found on serpentine. Elevation 180-1700 meters | Jan-Apr (Jun) | **Unlikely.** Unlikely to occur; suitable habitat not present the vicinity. |
| **Vine Hill manzanita**  
*Arctostaphylos densiflora* | -  
|CE  
|1B | Acid marine sand in chaparral. Elevation 50-100 meters | Feb-Apr | **Unlikely.** Unlikely to occur; suitable habitat not present the vicinity. |
| **Rincon manzanita**  
*Arctostaphylos standfordiana ssp. decumbens* | -  
|CE  
|1B | Chaparral. Highly restricted endemic to red rhyolites in Sonoma County. Elevation 75-310 meters | Feb-Apr | **Unlikely.** Unlikely to occur; suitable habitat not present the vicinity. |
| **Sonoma sunshine**  
*Blennosperma bakeri* | FE  
|CE  
|1B | Vernal pools and swales in valley and foothill grassland. Elevation 10-100 meters | Mar-May | **Moderate.** Potential to occur in seasonal wetlands/vernal pools the vicinity. Closest known occurrence is approximately 6.1 miles from the Amended Project Area; last observed in 1993. There are ten other occurrences within a 10-mile radius of the Amended Project Area, and most of these were last seen in the 1990s and are presumed extant. |
| **Sonoma brodiaea**  
*Brodiaea californica var. leptandra* | -  
|CE  
|1B.2 | Broadleafed upland forest, chaparral, and lower montane coniferous forest. Elevation 110-915 meters | May-Jul | **Unlikely.** Unlikely to occur; suitable habitat not present the vicinity. |
| **Thurber’s reed grass**  
*Calamagrostis crassiglumis* | -  
|CE  
|2 | Usually in marshy swales surrounded by grassland or coastal scrub. Elevation 10-45 meters | May-Jul | **Low.** Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; last observed in 1977 in Upper Pitkin Marsh. There are no other occurrences within a 10-mile radius of the Amended Project Area. |
| **Swamp harebell**  
*Campanula californica* | -  
|CE  
<p>|1B | Bogs, fens, and marshes in a variety of habitats: closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, and coast coniferous forest. Uncommon. Elevation 1-405 meters | Jun-Oct | <strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; presumed extirpated. There is one other occurrence within a 10-mile radius of the Amended Project Area; last seen is 1945 and is possibly extirpated. |</p>
<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Habitat</th>
<th>Bloom Period</th>
<th>Potential for Occurrence within the Amended Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>White sedge Carex albida</td>
<td>FE CE 1B</td>
<td>Freshwater marsh, bogs and fens, and meadows and seeps. Endemic to Sonoma County. Elevation 35-55 meters</td>
<td>May-Jun</td>
<td>Low. Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; last seen between 1974 and 1988. There are three other occurrences within a 10-mile radius of the Amended Project Area and only one is presumed extant.</td>
</tr>
<tr>
<td>Pitkin March Indian paintbrush Castilleja uliginosa</td>
<td>- CE 1A</td>
<td>Freshwater marsh. Last known remaining plant died in 1987; was known from overgrown freshwater marsh. Elevation 60 meters</td>
<td>Jun-Jul</td>
<td>Unlikely. Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; possibly extirpated. There is one other occurrence within a 10-mile radius of the Amended Project Area that is also possibly extirpated. These two occurrences are the only occurrences in the CNDB and this species is presumed extinct in California.</td>
</tr>
<tr>
<td>Rincon ridge ceanothus Ceanothus confusus</td>
<td>B B 1B</td>
<td>Closed-cone coniferous forest, chaparral, and cismontane woodland. Known from volcanic or serpentine soils and dry shrubby slopes. Elevation 75-1065 meters</td>
<td>Feb-Apr</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Vine Hill ceanothus Ceanothus foliosus var. vineatus</td>
<td>- 1B</td>
<td>Sandy, acidic soil in chaparral. Elevation 45-85 meters</td>
<td>Mar-May</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Pappose tarplant Centromadia parryi ssp. parryi</td>
<td>- 1B</td>
<td>Coastal prairie, meadows and seeps, coastal salt marsh, and valley and foothill grassland in vernally mesic, often alkaline sites. Elevation 2-420 meters</td>
<td>May-Nov</td>
<td>Low. Potential to occur in seasonal wetlands/vernal pools or grasslands on vacant parcels, but alkaline soils are probably not present in the vicinity. Closest known occurrence is approximately 10-miles from Amended Project Area; last observed in 1938. There are no other occurrences within a 10-mile radius of the Amended Project Area or in Sonoma County. Most occurrences are in Solano County.</td>
</tr>
<tr>
<td>Vine Hill clarkia Clarkia imbricata</td>
<td>FE CE 1B</td>
<td>Acidic, sandy soil in chaparral and valley and foothill grassland. Elevation 50-75 meters</td>
<td>Jun-Aug</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Pennell’s bird’s-beak Cordylanthus tenius ssp. capillaris</td>
<td>FE CR 1B</td>
<td>In open or disturbed areas of serpentine within chaparral or closed-cone coniferous forest. Elevation 45-230 meters</td>
<td>Jun-Sep</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Species</td>
<td>Status</td>
<td>Habitat</td>
<td>Bloom Period</td>
<td>Potential for Occurrence within the Amended Project Area</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>-------------------------------------------------------------------------</td>
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<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Yellow larkspur Delphinium luteum</td>
<td>FE CR 1B</td>
<td>Chaparral, coastal prairie, and coastal scrub. North-facing rocky slopes. Elevation 0-100 meters</td>
<td>Mar-May</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Dwarf downingia Downingia pusilla</td>
<td>- - 2</td>
<td>In several types of vernal pools and vernal lakes within valley and foothill grassland along margins with a variety of associates. Elevation 1-485 meters</td>
<td>Mar-May</td>
<td>Moderate. Potential to occur in seasonal wetlands/vernal pools on vacant parcels. Last observed in 1992 in the vicinity. There are eight other occurrences within a 10-mile radius of the Amended Project Area and most of them are presumed extant.</td>
</tr>
<tr>
<td>Serpine daisy Erigeron serpentinus</td>
<td>- - 1B</td>
<td>Serpentine chaparral; one site known. Elevation 210 meters</td>
<td>May-Aug</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Fragrant fritillary Fritillaria liliacea</td>
<td>- - 1B</td>
<td>Coastal scrub, valley and foothill grassland, and coastal prairie. Often on serpentine. Various soils reported though usually clay.</td>
<td>Feb-Apr</td>
<td>Low. Potential to occur grasslands on vacant parcels. Closest known occurrence is approximately 3 miles from Amended Project Area; last observed in 2002. There are no other occurrences within a 10-mile radius of the Amended Project Area.</td>
</tr>
<tr>
<td>Santa Cruz tarplant Holocarpha macradenia</td>
<td>FT CE 1B</td>
<td>Coastal prairie and valley and foothill grassland in light, sandy soil or sandy clay; often with non-natives. Elevation 10-260 meters</td>
<td>Jun-Oct</td>
<td>Low. Potential to occur grasslands on the vacant parcels. Closest known occurrence is approximately 7 miles from the Amended Project Area; presumed extirpated. There are no other occurrences within a 10-mile radius of the Amended Project Area.</td>
</tr>
<tr>
<td>Thin-lobed horkelia Horkelia tenuiloba</td>
<td>- - 1B</td>
<td>Coastal scrub and chaparral. Sandy soils; mesic openings. Elevation 45-500 meters</td>
<td>May-Jul</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Burke’s goldfields Lasthenia burkei</td>
<td>FE CE 1B</td>
<td>Most often in vernal pools and swales and sometimes in meadows and seeps. Elevation 15-580 meters</td>
<td>Apr-Jun</td>
<td>High. Potential habitat exists in small swales throughout undeveloped parcels. Observed throughout the Windsor area in the past 10 years, including within portions of the Old Redwood Highway area of the Added Area.</td>
</tr>
<tr>
<td>Legenere Legenere limosa</td>
<td>- - 1B</td>
<td>In beds of vernal pools. Many historical occurrences are extirpated. Elevation 1-880 meters.</td>
<td>Apr-Jun</td>
<td>Low. Potential to occur in seasonal wetlands/vernal pools on vacant parcels, especially deeper pools. Closest known occurrence is &gt; 10-miles from the Amended Project Area.</td>
</tr>
<tr>
<td>Species</td>
<td>Status</td>
<td>Habitat</td>
<td>Bloom Period</td>
<td>Potential for Occurrence within the Amended Project Area</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Jepson’s leptosiphon</td>
<td></td>
<td>Chaparral and cismontane woodland in open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. Elevation 100-500 meters</td>
<td>Apr-May</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Leptosiphon jepsonii</td>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sebastopol meadowfoam</td>
<td>FE CE</td>
<td>Mesic meadows, vernal pools, swales, wet meadows and marshy areas within valley oak savanna and valley and foothill grassland. On poorly drained soils of clays and sandy loam. Only known from Napa and Sonoma counties. Elevation 15-115 meters</td>
<td>Apr-May</td>
<td>Moderate. Potential to occur in seasonal wetlands/vernal pools the vicinity. Closest known occurrence is approximately 3 miles from the Amended Project Area; last observed in 1990. There are 12 other occurrences within a 10-mile radius of the Amended Project Area and most of them are presumed extant.</td>
</tr>
<tr>
<td>Limnanthes vinculans</td>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marsh microseris</td>
<td></td>
<td>Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevation 5-300 meters</td>
<td>Apr-Jun</td>
<td>Low to Moderate. Potential habitat exists in grasslands and oak woodlands throughout the vicinity, particularly in undeveloped parcels. The closest recorded occurrence is two miles from the Amended Project Area, and was last observed in 1981. The closest known occurrence is mapped within the project area, but this occurrence has a broad mapping because its exact location is unknown. It is based on historical collections. There is one other occurrence within a 10-mile radius; its exact location is also unknown.</td>
</tr>
<tr>
<td>Microseris paludosa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robust monardella</td>
<td></td>
<td>Openings in broadleaved upland forest, chaparral, cismontane woodland, and valley and foothill grassland. Elevation 30-300 meters</td>
<td>Jun-Jul</td>
<td>Low. Potential to occur in openings in the riparian woodlands. Closest known occurrence last observed in 1899. There has been one occurrence within a 10-mile radius of the Amended Project Area.</td>
</tr>
<tr>
<td>Monardella villosa ssp. globosa</td>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baker’s navarretia</td>
<td></td>
<td>Vernal pools and swales in adobe or alkaline soils within cismontane woodland, meadows and seeps, valley and foothill grassland, and lower montane coniferous forest. Elevation 5-950 meters</td>
<td>Apr-Jul</td>
<td>Moderate. Potential to occur in seasonal wetlands/vernal pools. Potential habitat exists in grasslands and oak woodlands throughout the Windsor area, particularly in the undeveloped parcels. Closest known occurrence last observed in 1938. There are 7 other occurrences within a 10-mile radius and most of them are presumed extant.</td>
</tr>
<tr>
<td>Navarretia leucocephala ssp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bakeri</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Status 8</td>
<td>Habitat</td>
<td>Bloom Period</td>
<td>Potential for Occurrence within the Amended Project Area9</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Many-flowered navarretia</td>
<td>FE CE 1B</td>
<td>Volcanic ash flow vernal pools. Elevation 30-950 meters</td>
<td>May-Jun</td>
<td><strong>Unlikely.</strong> Suitable habitat is not present the vicinity. There are only two reported occurrences of this species in the County, southwest of Shiloh Road and U.S. 101.</td>
</tr>
<tr>
<td>Navarretia leucocephala ssp. plieantha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White beaked-rush Rhynchospora alba</td>
<td>- - 2</td>
<td>Freshwater marshes, fens, and sphagnum bogs. Elevation 60-2000 meters</td>
<td>Jul-Aug</td>
<td><strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7.0 miles from Amended Project Area; last seen in 1987. There are no other occurrences within a 10-mile radius of the Amended Project Area.</td>
</tr>
<tr>
<td>California beaked-rush Rhynchospora californica</td>
<td>- - 1B</td>
<td>Freshwater seeps and open marshy areas. Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Elevation 45-1000 meters</td>
<td>May-Jul</td>
<td><strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; last seen in 1977. There is one other occurrence within a 10-mile radius of the Amended Project Area that is extirpated.</td>
</tr>
<tr>
<td>Brownish beaked-rush Rhynchospora capitellata</td>
<td>- - 2</td>
<td>Mesic sites in lower montane coniferous forest, meadows and swamps, and upper montane coniferous forest. Elevation 455-2000 meters</td>
<td>Jul-Aug</td>
<td><strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7 miles from Amended Project Area; last seen in 1977 and possibly extirpated. There is one other occurrence within a 10-mile radius of the Amended Project Area that is also possibly extirpated.</td>
</tr>
<tr>
<td>Round-headed beaked-rush Rhynchospora globularis var. globularis</td>
<td>- - 2</td>
<td>Freshwater marsh. Elevation 45-60 meters</td>
<td>Jul-Aug</td>
<td><strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 7.0 miles from the Amended Project Area; last seen in 1978. There is one other occurrence within a 10-mile radius of the Amended Project Area that was last seen in 1945.</td>
</tr>
<tr>
<td>Kenwood Marsh checkerbloom Sidalcea oregana ssp. valida</td>
<td>FE CE 1B</td>
<td>Edges of freshwater marshes. Elevation 115-150 meters</td>
<td>Jun-Sep</td>
<td><strong>Low.</strong> Potential to occur along creeks if freshwater marsh habitat is present near the channel. Closest known occurrence is approximately 8 miles from Amended Project Area; last seen in 1998. There are no other occurrences within a 10-mile radius of the Amended Project Area.</td>
</tr>
</tbody>
</table>
### 6.2 BIOLOGICAL RESOURCES

<table>
<thead>
<tr>
<th>Species</th>
<th>Status^8</th>
<th>Habitat</th>
<th>Bloom Period</th>
<th>Potential for Occurrence within the Amended Project Area^9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showy Indian clover</td>
<td>FE-1B</td>
<td>In valley and foothill grassland and coastal bluff scrub in swales in open, sunny sites. Most recently sited on the roadside and eroding cliff face. Sometimes on serpentine soil. Elev. 5-560 meters</td>
<td>Apr-Jun</td>
<td>Low. Potential to occur in seasonal wetlands/vernal pools on vacant parcels. Closest known occurrence is approximately 7 miles from Amended Project Area; last observed in 1938. There are 2 other occurrences within a 10-mile radius of the Amended Project Area and both are presumed extant.</td>
</tr>
<tr>
<td>Saline clover</td>
<td>-1B</td>
<td>In alkaline soils in vernal pools, marshes, and mesic grassland. Elevation 0-300 meters</td>
<td>Apr-Jun</td>
<td>Unlikely. Unlikely to occur; suitable habitat not present the vicinity.</td>
</tr>
<tr>
<td>Oval-leaved viburnum</td>
<td>-2</td>
<td>Chaparral, cismontane woodland, and lower montane coniferous forest. Elevation 215-1400 meters</td>
<td>May-Jun</td>
<td>Low. Potential to occur along creek on vacant parcels in riparian woodland. Closest known occurrence is approximately 6 miles from Amended Project Area. There are no other occurrences within a 10-mile radius of the Amended Project Area.</td>
</tr>
</tbody>
</table>


Species in Table 6.2-2 that occur in forest, coastal scrub, or chaparral habitats are unlikely to occur in the Amended Project Area. Some species are serpentine endemics or prefer acidic or alkaline soils and are unlikely to be present in the Amended Project Area because these soil types are not present in the Amended Project Area according to the Soil Conservation Service’s soil maps. The soil types of the area include Cole Silt Loam, 0 to 2% slopes (CnA) and Huichica Loam, 0 to 9% (HvC, HtC, HuB, HTa, and HuB). The Cole soil series, located in the northern portion of the Added Area north of Arata Lane, is a somewhat poorly drained silt loam with clay subsoil. The Huichica soil series throughout the remainder of the Amended Project Area is a moderately well drained to somewhat poorly drained soil type underlain by clay and a strongly cemented hardpan.

CNPS List 3 species are not considered in this EIR. The two federally-listed species are not known to occur in the Healdsburg quadrangle or the 8 surrounding quadrangles, or within a 10-miles radius of the Amended Project Area. In addition, the Contra Costa goldfields is not known to occur in the County.

**Sensitive Habitats**

Sensitive habitats include those that are of special concern to resource agencies, or that are afforded legal protection through California Environmental Quality Act (CEQA), Section 1600 of the CFGC, Section 404 or 401 of the CWA, and/or the State Porter-Cologne Act. Sensitive habitats located in the Amended Project Area include jurisdictional waters of the US consisting of drainages of seasonal wetland habitat. The jurisdictional waters of the US

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occurring in the Amended Project Area include Windsor Creek, East Windsor Creek, Starr Creek, Sotoyome Creek, and Gumview Creek.

In an area of northern hardpan, vernal pool habitat is identified by the CNDDB just west of the Shiloh Road portion of the Added Area. No vernal pool habitat is identified within the Amended Project Area, although not all vacant parcels have been surveyed.

Although the Amended Project Area is within the Conservation Strategy Study Area, there are no designations within the area. The Kerry Conservation Area is pending just west of the Added Area near Arata Lane.

REGULATORY SETTING

Many biological resources in California are protected and/or regulated by a variety of laws and policies. Prior to implementation, it is necessary for any individual development project to be in compliance with these regulations. Key regulatory issues are discussed below.

Special-status species include plants and animals that are legally protected, or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. This includes species listed as state and/or federally Threatened or Endangered, those considered as candidates for listing as Threatened or Endangered, species identified by CDFG and/or USFWS or the National Marine Fisheries Service (NMFS) as Species of Special Concern, and plants considered by the CNPS to be rare, threatened or endangered (i.e., plants on CNPS List 1B).

FEDERAL

Federal Endangered Species Act

Pursuant to the FESA, the USFWS and NMFS have authority over projects that may affect the continued existence of a federally-listed species. Either an "incidental take permit", under Section 10(a) of the FESA, or a federal interagency consultation, under Section 7 of the FESA, is required if the project may affect a federally-listed species. Under the FESA, the definition of "take" includes killing, harming, or harassing. USFWS has also interpreted the definition of harm to include significant habitat modification.

A project sponsor for any activity within the Amended Project Area is required to comply with the FESA in order to avoid take of listed species that occur on a site and to avoid adverse modification of habitat that is determined to be essential to the survival and recovery of listed species. Where sensitive species or habitats are identified on a development site, in order to ensure compliance with the FESA, the USFWS may conduct a review of a project independent of a CEQA analysis in conjunction with the required United States Army Corps of Engineers (USACE) Section 404 wetland permit.

Fish and Wildlife Coordination Act

Section 7 of Fish and Wildlife Coordination Act, 16 USC 742 et seq., 16 USC 1531 et seq., and 50 CFR 17 requires consultation if any proposed program or facilities could jeopardize the continued existence of an endangered species. Applicability depends on federal jurisdiction over some aspect of the project. The administering agency for these authorities is expected to be the USACE in coordination with the USFWS.
Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to “take” (kill, harm, harass, etc) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. There are 836 species listed in the MBTA, including species potentially occurring within the Amended Project Area such as the Red-tailed hawk (*Buteo jamaicensis*), Merlin (*Falco columbarius*), and Prairie falcon (*Falco mexicanus*). The Bald and Golden Eagle Protection Act affords additional protection to all bald and golden eagles.

Clean Water Act

Section 404

Section 404 of the CWA requires that a permit be obtained from the USACE prior to the discharge of dredged or fill materials into any “waters of the US or wetlands.” Waters of the US are broadly defined in the USACE’s regulations (33 CFR 328) to include navigable waterways, their tributaries, lakes, ponds, and wetlands. Wetlands are defined as “(t)hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (Federal Register 1982). Wetlands that are not specifically exempt from Section 404 regulations (such as drainage channels excavated on dry land) are considered to be “jurisdictional wetlands.” The USACE is required to consult with the USFWS, Environmental Protection Agency (EPA), the State Regional Water Quality Control Board (RWQCB), and CDFG (among other agencies) in carrying out its discretionary authority under Section 404.

The USACE grants two types of permits, individual and nationwide. Project-specific individual permits are required for certain activities that may have a potential for more than a minimal impact and necessitate a detailed application. The most common type of permit is a nationwide permit. Nationwide permits authorize activities on a nationwide basis unless specifically limited, and are designed to regulate with little delay or paperwork certain activities having minimal impacts. Nationwide permits typically take two to three months to obtain whereas individual permits can take a year or more. To qualify for a nationwide permit, strict conditions must be met.

Section 401

Section 401 of the CWA requires a state-issued Water Quality Certification for all projects regulated under Section 404. In California, the North Coast RWQCB issues Section 401 Water Quality Certifications for the Amended Project Area.

STATE

California Endangered Species Act

The CESA declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the CFGC. Listed species are generally given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed.
CESA authorizes that “Private entities may take plant or wildlife species listed as endangered or threatened under the CESA and FESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the FESA, if the CDFG certifies that the incidental take statement or incidental take permit is consistent with CESA” (CFGC §2080.1(a)). Under CESA, take is defined as an activity that would directly or indirectly kill an individual of a species, rather than also including “harm” or “harass” as is included in the federal act. As a result, the threshold for a take under the CESA is lower than that under the FESA (i.e., habitat modification is not necessarily considered a take under the CESA).

**California Environmental Quality Act – Treatment of Listed Plant and Animal Species**

Although threatened and endangered species are protected by specific federal and state statutes, Section 15380(b), (c), and (d) of the CEQA Guidelines provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These would include those species identified as *endangered* or *rare* as defined in Section 15380 (b) of the CEQA Guidelines:

- “Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or
- “Rare” when either:
  a) 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
  b) The species is likely to become endangered within the foreseeable future throughout all or significant portion of its range and may be considered “threatened” as that term is used in the Federal Endangered Species Act.

Under Section 15380 (c) of the CEQA Guidelines, a species of animal or plant shall be presumed to be endangered, rare or threatened, if it is listed in either:

- Sections 670.2 or 670.5, Title 14, California Code of Regulations (CCR); otherwise known as the CESA
- Title 50, Code of Federal Regulations (CFR) Section 17.11 or 17.12 pursuant to the FESA as rare, threatened, or endangered

Under Section 15380 (d) of the CEQA Guidelines, a species not included in any listing identified in subdivision (c) shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the definition of rare or endangered listed above.

Two other sources for sensitive species are the California Species of Special Concern and Fully Protected Species lists; and the CNPS “RARE” listings. The status “State Species of Special Concern” and “Fully Protected Species” apply to animals not listed under the CESA and FESA, but which nonetheless either: (1) are declining at a rate that could result in listing; or (2) historically occurred in low numbers and known threats to their persistence currently exist. The CNPS Inventory of Rare and Endangered Vascular Plants of California is sanctioned by CDFG, and serves as a Species of Special Concern list for plants. For purposes of CEQA review, observed plant and wildlife Species of Special Concern, and plants with a CNPS designation of 1a, 1b, and 2, that could potentially occur in the area are considered sensitive species, as well as any others that meet the requirements under the State CEQA Guidelines Section 15380 (b).
The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

**California Fish and Game Code**

The CFGC provides specific protection and listing for several types of biological resources. Section 1580 of the CFGC presents the process and definition for Designated Ecological Reserves. Designated Ecological Reserves are significant wildlife habitats to be preserved in natural condition for the general public to observe and study.

Section 1600 of the CFGC requires a Streambed Alteration Agreement (SAA) for any activity that may alter the bed and/or bank of a stream, river, or channel. Typical activities that require a SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Any redevelopment activities that would result in the removal of riparian vegetation and construction within or immediately adjacent to the river, consistent with adopted plans, will require a SAA for the project.

Section 2081(b) and (c) of the CESA allows the CDFG to issue an incidental take permit for a state listed threatened and endangered species, only if specific criteria are met. These criteria can be found in Title 14 CCR, Sections 783.4 (a) and (b). No Section 2081(b) permit may authorize the take of “fully protected” species and “specified birds.” If a project is planned in an area where a fully protected species or specified bird occurs, an applicant must design the project to avoid all take; the CDFG cannot provide take authorization under CESA.

**Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act charges the State Water Resources Control Board (SWRCB) and the nine RWQCBs statewide with protecting water quality throughout California. Typically, the SWRCB and RWQCB act in concert with the USACE under Section 401 of the CWA in relation to permitting fill of federally jurisdictional waters. The United States Supreme Court recently acted to limit the regulatory jurisdiction of the USACE under Section 404 of the CWA (USSC, 2001). This action did not limit the state’s regulatory jurisdiction over Waters of the State (Guzy and Porter, 2001). Waters of the State are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as “...any surface water or groundwater, including saline waters, within the boundaries of the state.” Currently, an applicant would delineate the wetlands on their property utilizing methodology presented in the 1987 USACE Wetland Delineation Manual (Environmental Laboratory, 1987) and the delineation would be verified by the USACE. In cases where an area meets the criteria to be considered a wetland, but the USACE does not have jurisdiction, the applicant is referred to the appropriate RWQCB. For the Amended Project Area, the North Coast RWQCB could exercise its jurisdiction over wetlands where a project does not require a federal permit, but involves removal or placement of material into Waters of the State.

**Native Plant Protection Act of 1977**

The Native Plant Protection Act of 1977 and implementing regulations in Section 1900 et seq. of the CFGC designates rare and endangered plants, and provides specific protection measures for identified populations. It is administered by the CDFG.
**Wetlands Resources Policy**

This policy provides for the protection, preservation, restoration, enhancement, and expansion of wetland habitats in California. The administering agencies for this authority are the CDFG, the California Environmental Protection Agency (CalEPA), and the North Coast RWQCB.

**REGIONAL**

**Final Santa Rosa Plain Conservation Strategy, 2005**

The Conservation Strategy was prepared by a collaboration of community groups, agency staff, and private individuals in the Santa Rosa Plain area, and focuses conservation efforts on the CTS and four federally listed plant species that occur on the Santa Rosa Plain. The Conservation Strategy addresses various aspects of urban and rural growth and its effects on the listed species, mitigation for impacts to endangered species and wetlands, and the various objectives for conserving and protecting CTS and listed plant habitat. The Conservation Strategy was created to provide a plan for local agencies, developers, and community groups that would preserve and enhance populations and habitat of the four listed species, while at the same time allowing development in accordance with local general plans and federal and state regulations.

The Conservation Strategy describes the areas targeted for plant conservation within and near the Town. These conservation areas have been selected based on historical species records, scientific data, quality of habitat, and the size and proximity of certain parcels to existing preserves, which allows larger areas to remain unmodified. The Amended Project Area is not located within any of the Windsor plant conservation areas. However, surveying for wetlands is required throughout the Study Area, and therefore throughout the Amended Project Area.

The Conservation Strategy provides detailed information on mitigation requirements for projects that have the potential to impact the CTS and four federally listed plants, mitigation banking procedures, and USFWS field survey protocols for establishing the presence or absence of a species (Appendix D of the Conservation Strategy).

**United States Fish and Wildlife Service Programmatic Biological Opinion**

The Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS, 2007) Programmatic Biological Opinion (PBO) submitted to the USACE in 2007 supersedes the previous PBO (submitted in 1998), which only covered four federally listed plant species. The PBO covers the CTS, Burke’s goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*), and Sebastopol meadowfoam (*Limnanthes vinculans*). The PBO provides guidance to the USACE on permitted projects on the Santa Rosa Plain. The guidance aims to help agencies carry out the Conservation Plan. The categories of guidance provided by this document are:

1. Definition of “Conservation Areas,” and a description of their purpose on the Santa Rosa Plain with respect to wetlands that support the four target species, or target species habitat.
2. The proposed action of appending projects to the programmatic biological opinion.
3. Definition of “Preserves,” and a description of their purpose on the Santa Rosa Plain with respect to wetlands that support the four target species, or target species habitat.
4. Mitigation and minimization requirements and procedures as they apply to projects and activities which impact the four target species.

5. A comprehensive status report of the four target species, which includes species descriptions, historical and current distribution, habitat, and life history, threats to survival, and environmental baseline.

6. Enclosures 1-5 which include two maps of the study area that provide proximity to occurrences of listed species and mitigation requirements, preserve establishment and evaluation criteria, translocation, and description of suitable habitat for the three plant species covered by the biological opinion.

Enclosure 1 designates areas of known occurrences of listed species, along with areas where development may affect listed species within the Santa Rosa Plain. The Amended Project Area is located in the area where development “may affect listed plant species, but will not likely affect California tiger salamander” except for a small area in the Existing Project Area south of Old Oak Road.

Proposal to Reinstate Critical Habitat Status for the California Tiger Salamander

The USFWS is re-proposing 74,223 acres of the Santa Rosa Plain as critical habitat for the Sonoma County population of the California tiger salamander, recently closing a 60-day public comment period on Oct. 17, 2009. The USFWS agreed to re-propose critical habitat in settlement of a lawsuit, and further to complete rule-making by July 1, 2011. The proposed critical habitat is the same area proposed in 2005, and includes most of the Santa Rosa Plain. The western limit is Laguna de Santa Rosa, and the proposal extends east to approximately the 200-foot elevation in the foothills. From north to south the proposal extends from Windsor Creek to Skillman Road.

The proposed critical habitat designation, which has its northern limit as Windsor Creek, would encompass approximately half of the area within the Town limits and Sphere of Influence (previous Figure 6.2-1, page 6.2-8). The Town has requested that the final critical habitat boundary be modified to specifically exclude all lands within the Town limits as well as within the Windsor Sphere of Influence. Developed lands within these areas have already been excluded as described in the text of the proposed rule, but the Town has requested that the boundary be drawn to specifically exclude all lands within the Town limits and Sphere of Influence as these areas also lack the primary constituent elements (PCEs) necessary for California tiger salamanders in Sonoma County. Excluding the Town from the mapped critical habitat boundary would prevent misinterpretation of critical habitat for vacant and undeveloped lands within the Town and for areas that are currently under development.

Regional Water Quality Control Board

Pursuant to Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredge or fill material into wetlands or other waters of the US and State must also obtain water quality certification from the RWQCB. This certification ensures that the project will uphold State water quality standards. Alternatively, the RWQCB may elect to notify a project sponsor that the State may issue Waste Discharge Requirements in lieu of a Section 401 certification for a project.

Wetlands and waters determined to be isolated and not subject to USACE jurisdiction, may be regulated by the RWQCB under the Porter-Cologne Act as waters of the State. Fill of

waters of the State requires issuance of a waste discharge permit. It is the policy of the State programs to have no net loss of wetlands.

LOCAL

Town of Windsor Zoning Ordinance

Windsor Tree Preservation and Protection Ordinance

The Zoning Ordinance (Municipal Code, Title XVII) includes regulations for the protection, preservation, and maintenance of trees of certain species and sizes, as described in Chapter 27.36, Tree Preservation and Protection. Removal of a regulated tree requires written authorization from the Town. Regulated trees include protected native trees of a certain species and size; heritage or landmark trees as identified by the Windsor Town Council Resolution; significant groves or stands of trees as determined by the Planning Commission, Council, or Planning Director; mature trees and sometimes smaller trees on a parcel that is one acre or larger as determined by the Planning Director, Planning Commission, or Town Council; and any tree that was required to be planted or preserved as environmental mitigation for a discretionary permit.

Protected native trees include the following trees that are six inches or greater in diameter at breast height (DBH; 4½ feet from the surrounding grade): coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), Oregon oak (*Q. garryana*), black oak (*Q. kelloggii*), valley oak (*Q. lobata*), oracle oak (*Quercus x morehus*), chase oak (*Quercus x chaseii*), and California buckeye (*Aesculus californica*). California bay (*Umbellularia californica*) that are 12 inches DBH are also protected. Regulated trees should be preserved and protected to the extent feasible during construction of a proposed development. Grading and landscape plans should be developed in accordance with an approved Tree Protection and Preservation Plan that is prepared by a certified arborist according to the guidelines in the Town’s Tree Technical Manual. This Plan should include:

- The location of all trees on the site or that overhang the site that are greater than 6 inches DBH
- Tree Protection Zones
- Appraisal values for each protected tree, (i.e., the monetary value of the tree as determined by the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers)
- Mitigation measures to compensate for the loss of each tree

A security deposit is required prior to site development (except for Town-initiated projects) to cover the monetary value of each preserved tree. Compensation for the removal of regulated trees can be monetary payment based on the trees’ appraised value or the project sponsor can implement a tree replacement plan. Tree replacement ratios vary and are determined by the Town on a case-by-case basis.

Windsor Creekside Development Ordinance

Zoning Ordinance Section 27.20.040, Creekside Development, provides development setbacks and other guidelines to protect creek channels and corridors. For development projects located adjacent to creeks, the Town requires a site-specific streambed analysis be prepared by a hydrologist, civil engineer, or other qualified professional. This analysis shall include the precise boundary of the top of the bank and other information as required by the Town.
Building setbacks from the creek are measured from the toe of the creek bank outward a distance of 2½ times the height of the creek bank plus 30 feet, or 30 feet outward from the creek bank, whichever distance is greater. Additional setbacks may be required to protect riparian woodlands, existing vegetation, or other environmental resources. Activities that are prohibited within the creek setback line include:

- Construction of structures, roads, paved areas, parking access, swimming pools and concrete channels or other mechanical stabilization measures (unless there are no other alternatives)
- Grading and filling
- Removal of native vegetation
- Planting non-native or upland plants

Other guidelines include placing drainage improvements in the least visible locations and naturalized with native plants and river rocks or earthen tone concrete, incorporating permeable surfaces into the development design, implementing creek bank stabilization methods that use native plantings and natural materials, and providing public access via multipurpose creekside trails.

**Town of Windsor General Plan**

The following General Plan Environmental Resources (ER) Chapter’s policies and implementation programs are applicable to the Amendment.

**Policies**

**ER-A.1.1** The Town shall seek to preserve open spaces resources (i.e., productive farmlands, outdoor recreation areas, biological habitats, visually prominent landforms, Alquist-Priolo Special Study Zones, and flood hazard areas) using the techniques identified in Table 6-1 of the General Plan. The first option for properly managing these resources should be avoidance of development in these open space resources.

**ER-A.1.2** The Town shall encourage the preservation of sensitive environmental resource areas, such as oak woodlands, productive farmlands, riparian (creekside) corridors, and visually prominent hillsides and ridgelines through measures such as clustering development and conservation easements.

**ER-B.2** Protect the rights of existing farms to continue their agricultural operations even though such activities may create nuisances for new surrounding land uses.

**ER-B.2.1** The Town should allow and encourage the ongoing use of land for productive agriculture. New development adjacent to such areas should be informed of the routine practices and operations that are associated with agriculture. Avoiding any nuisances or impacts resulting from the agricultural activities should be the responsibility of the new, proposed use.

**ER-B.2.2** Proposed new development that would be adjacent to existing agricultural properties should include buffers onsite to protect the continued viability of the neighboring agriculture and to minimize adverse effects of agricultural operations. If the existing agricultural property lies outside the Urban Growth Boundary, then the onsite buffer should be permanent and composed of predominantly native and low water-using species, or other appropriate perimeter screening should be required. The Town should allow and encourage the productive use of buffers for appropriate uses, where legally permissible, such as
bike trails, rather than requiring buffers to be idle open space. The size of the buffer will be determined by parcel specific review for all new development adjacent to agricultural property. If however, the existing agricultural property lies inside the Urban Growth Boundary and is anticipated to be converted to another non-agricultural use designation according to the General Plan, then the buffer would be temporary. When the interim agricultural area is converted to the non-agricultural use designation, the intermediate buffer area may convert to its underlying land use designation.

ER-B.4 Agricultural Buffers. The Town shall review its development standards regarding agricultural buffers to allow for greater flexibility in satisfying the objective of minimizing land use conflicts. The buffer distances should be variable based on the type of crops, the agricultural practices, and the type of buffer to be provided. The standards shall also specify appropriate compatible uses within the buffer, where legally permissible.

ER-C.2 Promote design guidelines to maintain creeks in their natural conditions.

ER-C.2.1 Windsor's natural creek system should be managed as an important natural, fishery, and visual resource by maintaining the creeks in their natural state, establishing appropriate setbacks for development, encouraging their incorporation into a trail system, and keeping them free and clear of debris and refuse.

ER-C.2.4 Whenever possible, creeks should be conserved in, or restored to, their natural states to carry storm waters, to maintain a natural appearance, and to protect fisheries. Portions of the channels that have been significantly altered for flood control should still be used for urban open space as landscaped paths.

ER-D.1 Protect unique and sensitive biotic features such as rare and endangered plants, dense oak woodlands, and vernal pools, and encourage sensitive design in these areas.

ER-D.1.1 Significant biological and ecological resources in the Windsor Planning Area should be protected. These include wetlands; rare, threatened, and endangered species and their habitats; vernal pools, oak groves and heritage trees (see Figure 6-2 of the General Plan). Other sensitive resources, as shown in Figure 6-2, include oak and riparian woodlands. To accomplish this, development proposals for projects in these areas must include a detailed inventory of the sensitive resources conducted by an independent, professionally qualified biologist, plant ecologist, arborist, or appropriately qualified specialist. If sensitive resources are identified on the project site, proposals to protect them shall conform with applicable state and federal regulations regarding their protection and may include avoidance of the resource, installing vegetative buffers, providing setbacks, clustering development onto less sensitive areas, preparing restoration plans, and offsite mitigation.

ER-D.1.2 The development potential from those portions of a project site that are considered inappropriate for development because of the presence of sensitive biological resources may be transferred to other portions of the site, unless otherwise restricted by policies of the General Plan.

ER-D.1.3 Development projects, which would fill wetlands or vernal pools, shall be required to conform with applicable state and federal regulations regarding the protection of these resources.
ER-D.1.4 Protection or restoration of sensitive biological resources that is required as a condition or mitigation of a development project should be closely monitored at the cost of the project applicant to determine compliance with the condition or mitigation and to evaluate the effectiveness of the measure.

ER-D.1.5 In significant riparian areas (including the watercourse itself and an area of land extending laterally at least 50 feet from each bank), the Town should prohibit dumping or disposal of refuse; confinement of livestock; and structural improvements except necessary water supply projects, flood control projects, fish and wildlife enhancement projects, trail projects, road and bridge projects, and utility projects.

ER-D.1.6 The Town should encourage the preservation of oak woodlands and significant stands of oaks and heritage trees. Development plans should indicate preservation of these resources to the fullest extent feasible and restrict pavement and other encroachments within the root zones of oak trees to ensure their long-term survival. Should removal be necessary, the project applicant should be required to plant replacement trees.

ER-D.1.7 During construction activities, the Town should require proper measures be implemented to assure the long-term survival of oaks and heritage trees. Fencing around individual trees or groups of trees shall be required to protect them from compaction and mechanical injury.

*Implementation Programs*

ER-A.3 The Town shall use its discretionary review authority to ensure the protection of its natural, scenic, and cultural resources and to protect public health and safety from hazards associated with hillsides, ridgelines, soils, steep slopes, and seismic and geologic hazard areas. In particular, the Town shall impose, as necessary, conditions of project approval to conserve these resources or protect public health and safety. Determination of these conditions or measures to minimize impacts to these open space resources can also be defined through the Town’s environmental review process which is mandated by CEQA.

ER-D.3 The Town shall a) develop regulations to define and protect oaks and heritage trees to be incorporated into the existing regulations; or b) consider the adoption of a Tree Preservation Ordinance and related provisions to protect “significant or heritage” trees.

**ENVIRONMENTAL IMPACTS**

**METHODOLOGY**

This is a programmatic analysis that assumes that where there is evidence of the possible or likely existence of a special status species or habitat in the Amended Project Area, it is possible that a future redevelopment activity could have an effect on such resources. Site-specific assessments on a project-by-project basis will be required pursuant to CEQA and Town procedures over the life of the Amendment, as projects are identified. The USACE determines whether non-designated water bodies are waters of the US and/or wetlands.

Trees in the Amended Project Area are treated similarly in this EIR. The Town’s Tree Conservation Ordinance identifies criteria for identifying protected trees. A tree survey was not undertaken for this project because such a survey is more appropriately done as part of
6.2 BIOLOGICAL RESOURCES

the environmental and project review for future development, especially considering the life of the Amendment.

Potential impacts are analyzed using information identified in the environmental setting and project description and comparing it to the Standards of Significance. When a project-related change in biological resources exceeds a threshold, a potentially significant impact is considered to occur as a result of the redevelopment project or redevelopment engendered development. Evaluations of the Amended Project Area were done programatically through an examination of potential impacts that could reasonably be assumed or inferred with respect to construction and/or operation of redevelopment engendered development within the Amended Project Area.

THRESHOLDS OF SIGNIFICANCE

The proposed Amendment would result in significant biological impacts if it would result in one or more of the following:

- 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 CDFG or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, rivers, 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.

PROJECT COMPONENTS

Redevelopment could assist in encouraging private development and financing public improvements necessary for development pursuant to the General Plan. The Economic Development Program may fill commercial/industrial vacancies, increase lease rates, and improve property values. The Agency may also encourage private development to assist with industrial/commercial rehabilitation of existing facilities or acquisition of land for business expansion. Infrastructure improvements cover a variety of public works projects including correcting utilities; traffic capacity projects and new streets and street improvements; streetscape improvements; undergrounding overhead transmission lines; storm drainage and sanitary sewers; flood control improvements; design and development of new wells and improvement of water delivery systems; wastewater treatment improvements; and many other assorted capital projects. The Town of Windsor Redevelopment Agency (Agency) may fund community-based projects focused on the need for new or improved community facilities such as parks and recreation facilities, community/teen centers, libraries, and civic center improvements. The Agency is also required to assist in a variety of programs to develop affordable housing, both inside the Project Area and Town-wide, including new housing, rehabilitation, and affordability assistance.
Such redevelopment activities, and development either directly or indirectly supported by redevelopment, could result in the removal of vegetation in the Amended Project Area, and could involve encroachment into or construction of infrastructure within sensitive habitats.

**IMPACTS OF THE PROPOSED PROJECT**

**Impact 6.2-1 Redevelopment activities and redevelopment engendered development could result in a potential loss of protected trees. This is a less-than-significant impact.**

The Amended Project Area contains trees that are regulated under the Windsor Tree Preservation and Protection Ordinance. Many of these trees are located along the creekside corridors, which are also protected by the setbacks required by the Windsor Creekside Development Ordinance. Infrastructure improvements and development that occurs in furtherance of the Amendment would be required to assess any potential project specific construction impacts to regulated trees, in coordination with a certified Arborist approved by the Town. The ordinance applies to all projects, including Town-sponsored/funded projects.

Any proposed development adjacent to creeks must be designed in accordance with the Town’s Creekside Development Ordinance and General Plan Policy ER-D.1.5. Development and construction may not be located any closer than 50 feet from a creek channel in accordance with General Plan Policy ER-D.1.5. Setbacks may be greater than 50 feet, whereas setbacks are measured from the toe of the creek bank outward to a distance of 2½ times the height of the creek bank plus 30 feet. Per the Ordinance, if the calculated setbacks do not encompass the entire riparian woodland corridor, which is defined by CDFG as extending outward to the dripline of the riparian trees, the setback may be further increased to the point that the entire corridor is included in the development setback.

In accordance with the Town’s Tree Protection and Preservation Ordinance, an approved Tree Protection and Preservation Plan must be prepared by a certified arborist according to the guidelines in the Town’s Tree Technical Manual prior to site development on any site containing protected trees. The report must include measures to protect trees during construction and the appraised value of all protected trees. Any protected trees that are damaged or removed during construction must be compensated for by monetary payment of the appraised value or by developing a replacement plan at ratios determined by the Town.

General Plan Policy ER-D.1.1 further requires that development proposals for projects in sensitive habitat areas must include a detailed inventory of the sensitive resources conducted by an independent, professionally qualified biologist, plant ecologist, arborist, or appropriately qualified specialist. If sensitive resources are identified on the project site, proposals to protect them shall conform with applicable state and federal regulations regarding their protection and may include avoidance of the resource, installing vegetative buffers, providing setbacks, clustering development onto less sensitive areas, preparing restoration plans, and off-site mitigation.

The Amended Project Area is a largely built environment, with tree resources concentrated in riparian corridors along creeks and scattered on vacant lots and large-lot residential. The City’s Creekside and Tree ordinances, in conjunction with General Plan policies, provide clear procedures for resource identification, protection, and mitigation as development occurs in the Amended Project Area, for both public and private projects. With adherence to
adopted Town ordinances and procedures, the potential for the Amendment to result in a significant loss of protected trees would be *less than significant*.

**Mitigation**

None required

**Impact 6.2-2 Redevelopment activities and redevelopment engendered development could result in a potential loss of special status plant species. This would be a significant impact.**

In general, the density and diversity of urban wildlife depends on the extent and type of landscaping and open space, as well as the proximity to natural habitats. The Amended Project Area provides marginally suitable habitat for a number of special status species, as identified as “low” or “unlikely” in Table 6.2-2. The richest habitat areas are located along the creeks, in seasonal wetlands, and in the remaining riparian woodland areas.

The Amended Project Area contains suitable conditions with a moderate to high likelihood of supporting six special status plant species: Sonoma sunshine, Burke’s goldfields, Sebastopol meadowfoam, Dwarf downingia, Marsh microseris, and Baker’s navarretia. Except for the Marsh microseris (grassland), all these listed plants grow only in seasonal wetlands.

The USFWS has developed protocols for federally-listed plants on the Santa Rosa Plain: Guidelines and Reporting Botanical Inventories for Federally Listed Plants in the Santa Rosa Plain.\(^{12}\) This protocol was developed specifically for four federally-listed plants: Sonoma sunshine, Burke’s goldfields, and Sebastopol meadowfoam, and many-flowered navarretia (Navarretia leucocephala ssp. pleiantha). Many-flowered navarretia occurs on volcanic ash flow vernal pools; however, this habitat is not present in the Amended Project Area.

Currently, the Amended Project Area is shown in the Santa Rosa Plain Conservation Strategy Map (Strategy Figure 3 dated April 16, 2007) as an area where the presence of CTS is not likely and mitigation for the CTS is not required. Under the proposed critical habitat designation, the Shiloh Road portion of the Added Area and the southern portions of the Existing Project Area would be located within the mapped critical habitat area. None of the areas within the Amended Project Area have been identified as containing suitable habitat for the CTS. The proposed rule designating critical habitat states that developed areas within the towns and cities that are included within the mapped critical habitat unit would be excluded from critical habitat designation because these developed areas lack the PCEs for tiger salamanders.

As noted in the Town’s comment letter,\(^{13}\) although the intention to exclude developed lands is clear from the language in the proposed rule, the intention with respect to vacant lands within cities and towns is not. Within the Amended Project Area there are numerous parcels that are vacant or undeveloped, or small parcels that may be proposed for subdivision that do not conform to the description of excluded lands in the proposed critical habitat designation. If such lands remain within the critical habitat unit, they may be construed in the future to be subject to section 7 consultation. These vacant and undeveloped lands are not typically large open grasslands or savannas connected to open space areas, but instead are small parcels of 1-2 acres (or less) that are remnants of a time when the Town was

\(^{12}\)USFWS, 1998a, op. cit.

unincorporated and was composed of large rural parcels with one house and perhaps an outbuilding or two. Although some of these parcels may possess one or two of the PCEs for tiger salamanders such as a standing body of water or gopher burrows, these parcels do not provide upland dispersal habitat between occupied sites and therefore have limited value for the survival and recovery of this species as a whole.

When development is proposed, formal wetland delineation must be conducted on any parcels containing or potentially containing wetlands to determine the extent of potential jurisdictional waters of the US. The protocol specifies that a minimum of three surveys in a season should be conducted for the federally special status species, and these three surveys must span a period when all of the listed plants have been observed (not necessarily at the same time) and are identifiable at local reference sites. A minimum of two seasons of surveys with negative results will be required to support a conclusion that these federally listed plants are absent from a development site. Results of the surveys are to be reported to the Town within two months of the completion of the survey each year, in accordance with reporting requirements specified in the USFWS protocol guidelines. Alternatively, a project sponsor may choose to forego the two years of surveys for listed plants and assume presence of the plants on a site.

If listed plants or their habitat (seasonal wetlands, vernal pools and swales) will be impacted either directly or indirectly as a result of development, mitigation will be required according to the terms of the Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects that May Affect Four Endangered Plant Species on the Santa Rosa Plain, California (PBO). This PBO allows for impacts to low quality seasonal wetland habitat as defined by the USACE Habitat Quality Evaluation procedure manual, but not high quality seasonal wetland habitat. Impacts to high quality wetland habitat are not covered in this PBO; high quality wetland habitat requires an individual USACE permit and USFWS consultation. Wetlands impacts are further discussed under Impact 6.2-4, below.

For purposes of this EIR, any impacts to wetland habitat that is suitable for any special status species regardless of the state or federal jurisdictional status of the wetlands under Section 401 and 404 of the CWA would be a significant impact, and require mitigation. If listed plants or their habitats are found on a redevelopment site, the applicant should first develop measures to avoid impacts to the populations if feasible, and then implement compensatory mitigation measures for unavoidable impacts.

Avoidance measures may include redesigning the project footprint to include buffer zones – if feasible – to avoid impacts to non-listed, special-status plants; fencing the existing plants populations prior to and during construction; and training construction personnel on the identification and location of these plants on the site. Measures should also be developed for the long-term avoidance and protection of the population, including measures for avoiding potential indirect impacts – such as changes in the hydrology of the site. A mitigation plan should be prepared that describes these avoidance measures and should be submitted to the Town and the USACE as part of the environmental and project review for future development.

If avoidance of these populations is not feasible, then compensatory mitigation measures should be implemented as outlined in the PBO or permits. Compensatory mitigation for listed plants includes both preservation and restoration/construction components. Preservation entails purchase of mitigation credits in a USFWS-approved preservation bank, or

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14 Ibid.
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preservation of high quality seasonal wetlands on the project site or on another non-bank site as approved by the USFWS. Restoration/construction is accomplished by purchasing mitigation credits within a USFWS-approved habitat restoration/construction mitigation bank, or by restoring/constructing wetlands on the project site or on another non-bank site as approved by the USFWS. All preserved seasonal wetlands and supporting uplands should be protected in perpetuity by an approved conservation easement or similar mechanism.

While specific protocols have been adopted for federally listed species, which affords some protection of other listed species, the development of the land where potentially suitable special status plant habitat occurs could result in a significant impact on the special status plants if they are present.

Mitigation

The following mitigation measures will ensure that potential impacts to special status plant species are reduced to less than significance.

6.2-2a Prior to development approval, a qualified biologist shall be retained by the project proponent to prepare a site-specific biological survey to determine the potential presence of wetlands, special status species, and/or suitable habitat for special status species. The project proponent shall conduct focused plant surveys according to the requirements in both the Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain and the CNPS Botanical Survey Guidelines (CNPS, 2001) for rare plant surveys, to determine the presence or absence of sensitive plant species. The surveys should be conducted during the flowering season of the sensitive plant species, by a qualified botanist with experience and knowledge of the flora of the Santa Rosa Plain. A report of the findings should be submitted to the appropriate agencies within two months of completion of the surveys and will include: a comprehensive species list, a description of habitat characteristics, copies of the survey forms and any notes taken during the survey, date of the survey, and the names of the surveyors.

6.2-2b No physical alteration of a development site or issuance of building permits shall occur within potentially biologically sensitive areas until evidence is submitted for review and approval by the Town that either no listed plants are present, or areas containing habitat for listed species have been avoided, or if avoidance is not possible, that all required consultations with the USFWS and/or CDFG have occurred pursuant to the FESA and CESA, and evidence is provided of any necessary permits, approvals, or agreements from USACE and CDFG for removal of any wetland or riparian habitat and/or associated drainages. If avoidance is not possible, a no jeopardy opinion will be required by the USFWS for federally listed species that could be affected. A no jeopardy opinion will not be issued unless USFWS agrees that adequate mitigation of the affected species has been provided. If state-listed species could be affected, a written agreement (such as a 2081 agreement) with CDFG would need to be obtained that specifies that adequate mitigation has been provided. Future proposed development engendered by redevelopment shall be consistent with the provisions of any required consultations and associated permits or agreements.

Significance after Mitigation

Less than significant
Impact 6.2-3  Redevelopment activities and redevelopment engendered development could result in a potential loss of special status raptor, migratory, or other bird species. This would be a significant impact.

The Amended Project Area contains marginally suitable habitat for ten special status animals species, including the White-tailed kite, Cooper’s hawk, Vaux’s swift, Purple martin, Yellow warbler, Yellow-breasted chat, Sharp-shinned hawk, Red-tailed hawk, Red-shouldered hawk, and American kestrel.

The Amendment would eliminate barriers to General Plan build-out in the Amended Project Area, by funding infrastructure improvements and providing incentives for housing development and commercial/industrial rehabilitation and development. Existing foraging areas now vacant may be developed as growth consistent with adopted plans occurs in the Project Area, resulting in a cumulative impact on the availability of foraging and nesting habitat. White-tailed kites, Cooper’s hawks, and other raptor species may nest in larger trees and riparian habitat, which could be disturbed by future development and infrastructure projects.

Active raptor nests are protected under Section 3503.5 of the CFGC. Construction activities during the breeding season could disturb nesting birds, which would be a potentially significant impact. Other special status species could be located on larger parcels with sufficient habitat that may be subject to future development. If active nest sites occur in or adjacent to a project site, noise and visual disturbance associated with construction activities occurring during the nesting season may lead to nest abandonment and/or nest failure. The removal of large trees has the potential to destroy active nest sites. Removal of suitable nesting and roosting habitat would be inconsistent with the Town preservation and protection of biological resources policies (Policies 6.D.1 and 6.D.1.6). The loss of suitable nesting habitat would conflict with Section 15380 and Section 15206 (b)(4)(F)(5) of CEQA, and would constitute a significant impact.

Mitigation

6.2-3a  No physical alteration of a development site or issuance of building permits shall occur within existing grasslands or riparian areas until a breeding season survey is conducted by a qualified biologist during spring or early summer (from March 1 through August 15, before development activity takes place) near annual grasslands, large trees, and riparian areas. The survey shall be conducted no more than one week prior to the start of work activities and shall cover all affected areas – including a 500-foot buffer area around the active project area, staging areas, and access road improvement areas where substantial ground disturbance or vegetation clearing is required.

6.2-3b  If surveys detect nesting raptors on the project site, the nest shall be fenced and avoided until nesting activity is completed. The CDFG shall be consulted to determine an appropriate “no disturbance” protection buffer for the active nest.

Construction activities shall be prohibited within this buffer zone until the end of the nesting season (mid August), or until the young have fledged. A qualified wildlife biologist shall monitor the nest to determine when the young have fledged and submit weekly reports to the CDFG and the Town throughout the nesting season. If the qualified biologist determines that a disturbance is occurring, construction shall be halted, and the CDFG shall be contacted to determine the need for additional protection measures.
6.2 BIOLOGICAL RESOURCES

6.2-3c Identified nesting trees approved for removal may only be removed prior to the onset of the nesting season (March 1) or after young have fledged (mid August).

Significance after Mitigation
Less than significant

Impact 6.2-4 Redevelopment activities and redevelopment engendered development have the potential to affect roosting or breeding special-status bats in the Amended Project Area. This would be a potentially significant impact.

Large diameter oak trees, outbuildings, barns, bridges, and uninhabited structures provide potential roosting habitat for common and special status bats. Townsend’s Pacific big-eared bat and the Pallid bat are two listed bat species with a moderate potential to be found in the Amended Project Area. The larger valley oaks provide suitable nesting and roosting sites, and open grassland and riparian areas provide forage habitat. Potential direct impacts to special-status bats include removal of habitat and active roost sites during site clearing and grading. Indirect impacts include increased noise and human presence during construction, with the possibility of nest or roost abandonment.

Mitigation

6.2-4a Concurrent with breeding bird surveys (Mitigation Measure 6.2-3a), a qualified biologist will conduct preconstruction surveys for special-status bats within suitable open structures and large trees (e.g., > 24 inch DBH) on the site. If special status bat species are identified on-site, the biologist shall evaluate whether breeding adults or juveniles are present. If present, a suitably sized buffer (e.g., 100 to 150 feet) shall be placed around the roost if it appears that grading, tree removal or other project activities may cause abandonment. If it appears that demolition activities may cause nest abandonment, demolition activities must cease until juvenile bats are self-sufficient and would not be directly impacted by project activities.

6.2-4b If special-status bats (i.e., pallid bat, Townsend’s Pacific big-eared bat) are found on-site, and the roost would be destroyed during development, an artificial roost shall be provided for the bats. The roost shall be constructed and placed on-site prior to removal of the original roost. The project sponsor shall prepare a mitigation plan specifying the construction details and siting of the structure. The plan shall be approved by the Town and CDFG prior to removal of the existing roost. The project sponsor shall provide a secure source of funding for the monitoring of the artificial roost for a period of at least 5 years. The site on which the artificial roost is located shall be placed in a conservation easement. A report documenting the implementation of the plan shall be provided to the Town within one month of completion of the artificial roost. The plan shall be completed and implemented prior to the issuance of the grading permit.

Significance after Mitigation
Less than significant
Impact 6.2-5  Potential jurisdictional seasonal wetlands, non-wetland waters, and waters of the US and State could be adversely affected by grading, construction, and improvements in connection with future redevelopment projects. This would be a potentially significant impact.

Jurisdictional waters within the Amended Project Area include creeks and their associated channels, ditches, and seasonal wetlands. Seasonal wetlands consist of areas with vernal swale topography that retain surface water, resulting in vernally wet herbaceous annual grassland vegetation. These areas may be subject to jurisdiction under section 404 of the CWA as wetlands based on their surface connection with adjacent creeks. Following the Rapanos Supreme Court decision, the EPA and USACE released guidance of CWA coverage to include wetlands that have an active surface water connection to streams which directly connect to jurisdictional waters.

Future development engendered by the Amendment and construction of public improvements could result in the fill of wetland habitat or non-wetland waters that are waters of the State subject to jurisdiction under the State Porter-Cologne Act and subject to jurisdiction as waters of the US under Section 404 of the CWA. Wetlands come under the jurisdiction of the USACE and waters of the State under the jurisdiction of the SWRCB or RWQCB. Any projects that would result in the fill of wetlands must be authorized under the CWA (sections 404 and 401) and/or the Porter-Cologne Act. Such projects must also comply with the CESA and the FESA as appropriate.

In addition, protection and conservation of seasonal wetlands that have the potential to support CTS and four federally listed plant species on the Santa Rosa Plain are specifically addressed in the PBO, discussed above. Prior to the commencement of preliminary environmental review, a project proponent may agree to mitigation measures or project modifications consistent with the Conservation Strategy; this would avoid any significant effect on the environment, or would mitigate the significant effects to a point where no significant effect on the environment would occur. Pursuant to CEQA, this could allow the lead agency to avoid preparation of an EIR to solely address impacts to the endangered species.\(^{16}\) The Conservation Strategy identifies the mitigation requirements for CTS, listed plant, and seasonal wetlands. Mitigation is required to compensate for the functions of any wetlands proposed to be filled. The minimum wetlands replacement ratio is 1:1. Higher replacement ratios are required for high quality wetlands, or as specified by the PBO for listed plants (PBO Appendix B), or as determined on a case-by-case basis.

The Amendment would eliminate barriers to General Plan build-out in the Amended Project Area, by funding infrastructure improvements and providing incentives for housing development and commercial/industrial rehabilitation and development. Development activities that could fill wetlands, which are a source of significant habitat values in the Amended Project Area, would have a potentially significant impact.

Mitigation

6.2-5a  Wetland Delineation: On parcels containing potential wetlands, a USACE-verified wetland delineation and jurisdictional determination of the parcel shall be completed before any earthmoving or grading activities within or adjacent to potential jurisdictional wetlands and drainages. If the USACE determines that areas on the project site are jurisdictional, all work proposed in these areas shall be authorized by permits from the USACE. All applicable permits from the CDFG and RWQCB will also be obtained before construction in areas under the

\(^{16}\) Conservation Strategy, pg. 35
jurisdiction of these agencies, and provided to the Town prior to the initiation of ground disturbing activities or other construction activities. The permitting agencies would need to be contacted by the owner in the event of any significant deviation from permitting conditions. If the USACE determines that the seasonal wetlands on a development site are protected by Section 404 of the CWA, the project would qualify as a permitted project under the PBO (USFWS, 2007). The USACE will then enter into consultation with USFWS in order to appropriately address the federally listed species in the USACE wetland permit. This action would effectively append the project to the PBO.

6.2-5b If construction activities occur within any creek channel, ditches with a defined bed and bank, or within the riparian woodland dripline, the project sponsor shall obtain a SAA from the CDFG. The project sponsor shall provide proof to the Town of compliance with the terms and conditions of the permits prior to issuance of the grading permit and prior to any construction in jurisdictional waters.

6.2-5c Wetland Avoidance and Minimization: To the extent feasible, the final project design will avoid and minimize effects to wetlands and other waters. Areas that are avoided will be protected from construction activities through implementation of Best Management Practices (BMPs).

6.2-5d Compensatory Mitigation of Permanent Impacts. Seasonal wetlands on the Santa Rosa Plain are considered habitat for federally-listed plants even if these plants are not found after conducting the USFWS protocol-level surveys for listed plants. Compensatory mitigation for impacts to low quality seasonal wetlands shall be in accordance with the PBO and permit requirements.

Significance after Mitigation

Less than significant

Impact 6.2-6 Redevelopment activities and redevelopment engendered development could result in interference with the movement of wildlife within creek corridors. This would be a less-than-significant impact.

The Windsor, East Windsor, Starr, and Sotoyome creek corridors are the primary movement corridors that could be adversely affected by the construction and development activities within the corridor. Wildlife species such Pacific pond turtle, foothill yellow-legged frog, and several fish species, as well as mammals, may use the creek as a migratory wildlife corridor. The developed character of the Amended Project Area and its location near US-101 make it unlikely that the limited remaining grasslands would provide an important wildlife movement corridor.

The Zoning Ordinance’s Creekside and Tree ordinances, in conjunction with General Plan policies, provide clear procedures for resource identification, protection, and mitigation as development occurs in the Amended Project Area, for both public and private projects. Significant buffers and riparian woodland protection are provided along creeks. With adherence to adopted Town ordinances and procedures, the potential for the Amendment to result in a significant loss of wildlife movement corridors would be less than significant.

Mitigation

None required
Impact 6.2-7  Redevelopment activities and redevelopment engendered development could result in the loss of aquatic and terrestrial habitat for special status amphibians and reptiles, and may result in direct impacts to these species through injury or mortality. This would be a potentially significant impact.

Redevelopment activities and redevelopment engendered development could result in both direct and indirect impacts to the Pacific pond turtle and other reptiles or amphibians, if creek alteration occurs or adjacent grasslands are lost. The pond turtle requires basking sites and adjacent grasslands or other open habitat for egg-laying. Implementation of the following three-part mitigation measure would reduce this impact to Pacific pond turtle and yellow-legged frog to a less-than-significant level.

Mitigation

6.2-7a In conjunction with Mitigation Measure 6.2-2a, above, surveys to determine the habitat suitability for or the presence of Pacific pond turtles shall be conducted to identify basking sites and potential nesting areas and shall be conducted during the spring or summer when the turtles and frogs are active and observable.

6.2-7b Where special status turtles and frogs are found, then preconstruction surveys for the Pacific pond turtle and foothill yellow-legged frog shall be conducted at least 48 hours prior to work in turtle and frog habitat. Any frogs or turtles observed during the preconstruction survey shall be relocated to at least 300 feet up or downstream of the work area.

6.2-7c Creekside buffer zones provided by creek setbacks shall be sufficient to provide upland habitat on-site for pond turtles, if present.

Significance after Mitigation

Less than significant

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.2-8  Redevelopment activities and redevelopment engendered development could result in a cumulative loss of special status species. This would be a less-than-significant impact.

The Amendment would be implemented in an area that provides some potential habitat for special status species. However, the Amended Project Area is an urban area, designated for urban use. Remaining vacant lands are mostly discontinuous and with enough human disturbance to lessen their value as habitat or migration corridors for special status species. The riparian woodlands, wetlands, and creek corridors within the Amended Project Area hold significant habitat values that are protected by the Zoning Ordinance’s Creekside and Tree ordinances, the Windsor General Plan, and the Conservation Strategy, as well as other federal and state requirements. Therefore, with implementation of standard project specific mitigation measures, cumulative impacts to special status species as a result of the Amendment would be less than significant.

Mitigation

None required
CHAPTER 6

ENVIRONMENTAL ANALYSIS
6.3 CLIMATE CHANGE

This Subchapter of the Environmental Impact Report (EIR) describes climate change issues related to the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). This section provides a general discussion of global climate change and focuses on emissions from human activities that alter the chemical composition of the atmosphere. The discussion on global climate change and greenhouse gas (GHG) emissions is based upon the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32), the 2006 Climate Action Team (CAT) Report to Governor Schwarzenegger and the Legislature, and research, information and analysis completed by the Intergovernmental Panel on Climate Change (IPCC), the United States Environmental Protection Agency (EPA), California Air Resources Board (CARB), the Bay Area Air Quality Management District (BAAQMD), the Northern Sonoma County Air Pollution Control District (NSCAPCD), the Sonoma County Community Climate Action Plan (2008), as well as the Town of Windsor Greenhouse Gas Emissions Reduction Action Plan (ERAP) Analysis (2008).

There were no comments received on the Notice of Preparation (NOP) regarding climate change or greenhouse gasses.

ENVIRONMENTAL SETTING

Global climate change refers to the change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. Projected climate changes could impact California's public health through changes in air quality, weather-related disasters, and a possible increase in infectious disease. If extreme precipitation and severe weather events become more frequent, and if sanitation and water-treatment facilities have inadequate capacity or are not maintained, increases in infectious diseases may result. The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. Many of the recent concerns over global climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from all previous climate changes in rate and magnitude.

The IPCC constructed several emission trajectories of GHG emissions needed to stabilize global temperatures and climate change impacts. The IPCC predicted that the range of global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1°C to 6.4°C. Regardless of analytical methodology, global average temperature and sea level are expected to rise under all scenarios.

This IPCC Assessment makes it clear that the impacts of future climate change will be mixed across regions. For example, according to the IPCC Fourth Assessment report, there may be large differences in regional population, income, and technological development under alternative scenarios, which are often a strong determinant of the level of vulnerability.

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to climate change. To illustrate, in a number of recent studies of global impacts of climate change on food supply, risk of coastal flooding, and water scarcity, the projected number of people potentially affected is considerably greater in areas characterized by relatively low per-capita income and large population growth. This difference is largely explained, not by differences in changes of climate, but by differences in vulnerability.\(^3\)

**GREENHOUSE GAS EMISSIONS**

GHG are gases that trap heat in the atmosphere, analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO\(_2\)), methane (CH\(_4\)), nitrous oxide (N\(_2\)O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF\(_6\)), ozone (O\(_3\)), and aerosols. Global atmospheric concentrations of CO\(_2\), methane, and N\(_2\)O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

The accumulation of GHG in the atmosphere regulates the earth’s temperature. Without the natural heat trapping effect of GHGs, the earth’s surface would be about 34°C cooler (CAT, 2006). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by feedbacks and forcings. A feedback is “an internal climate process that amplifies or dampens the climate response to a specific forcing”\(^4\). Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere. It is the “cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas.”\(^5\)

Individual GHG have varying GWP and atmospheric lifetimes (Table 6.2-1). The CO\(_2\) equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is CO\(_2\); CO\(_2\) has a GWP of one. By comparison, methane’s GWP is 21; methane therefore has a greater global warming effect than CO\(_2\) on a molecule per molecule basis.\(^6\) CO\(_2\) equivalent (CO\(_2\)e) is the mass emissions of an individual GHG multiplied by its GWP. Due to the scale of GHG calculations, one million metric tons (equal to one teragram (Tg)) of CO\(_2\)e is a common unit of measure, abbreviated MMTCO\(_2\)e or TgCO\(_2\)Eq.

**Water Vapor (H\(_2\)O)**

Of all GHG in the atmosphere, water vapor is the most abundant, important, and variable. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85%). Other

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\(^3\) Ibid.

\(^4\) National Research Council, Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties, 2005.


sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

### TABLE 6.2-1
**GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES OF SELECT GREENHOUSE GASES**

<table>
<thead>
<tr>
<th>Gas</th>
<th>Atmospheric Lifetime (years)</th>
<th>Global Warming Potential (100 year time horizon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Dioxide (CO₂)</td>
<td>50-200</td>
<td>1</td>
</tr>
<tr>
<td>Methane (CH₄)</td>
<td>12 ±3</td>
<td>21</td>
</tr>
<tr>
<td>Nitrous Oxide (N₂O)</td>
<td>120</td>
<td>310</td>
</tr>
<tr>
<td>HFC-23</td>
<td>264</td>
<td>11,700</td>
</tr>
<tr>
<td>HFC-134a</td>
<td>14.6</td>
<td>1,300</td>
</tr>
<tr>
<td>HFC-152a</td>
<td>1.5</td>
<td>140</td>
</tr>
<tr>
<td>PFC: Tetrafluoromethane (CF₄)</td>
<td>50,000</td>
<td>6,500</td>
</tr>
<tr>
<td>PFC: Hexafluoroethane (CF₆)</td>
<td>10,000</td>
<td>23,900</td>
</tr>
<tr>
<td>Sulfur Hexafluoride (SF₆)</td>
<td>3,200</td>
<td>23,900</td>
</tr>
</tbody>
</table>


**Carbon Dioxide (CO₂)**

CO₂ is an odorless, colorless natural GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO₂ include burning coal, oil, natural gas, and wood. Concentrations of CO₂ were 379 parts per million (ppm) in 2005, which is an average increase of 1.4 ppm per year since 1960.⁷

**Methane (CH₄)**

Methane is a flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of CO₂ and two molecules of water are released. There are no health effects from methane. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.

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**Nitrous Oxide (N₂O)**

N₂O, also known as laughing gas, is a colorless GHG. Higher concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N₂O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, as an aerosol spray propellant, and in race cars.

**Chlorofluorocarbons (CFCs)**

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are non-toxic, non-flammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth’s surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric O₃; therefore, their production was stopped as required by the Montreal Protocol in 1987.

**Hydrofluorocarbons (HFCs)**

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs for automobile air conditioners and refrigerants.

**Perfluorocarbons (PFCs)**

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet (UV) rays about 60 kilometers above Earth’s surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are over 70 parts per thousand (ppt). The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

**Sulfur hexafluoride (SF₆)**

SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900). Concentrations in the 1990s were about 4 ppt. SF₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

**Ozone (O₃)**

Described in Subchapter 6.1 (Air Quality) as a criteria pollutant, O₃ is also a GHG; however, unlike the other GHGs, O₃ in the troposphere is relatively short-lived and therefore is not global in nature. According to the CARB, it is difficult to make an accurate determination of the contribution of O₃ precursors (oxides of nitrogen (NOₓ) and volatile organic compounds (VOCs)) to global warming. Therefore, project emissions of O₃ precursors would not significantly contribute to global climate change.
Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel with sulfur in it is burned. Black carbon (or soot) is emitted during biomass burning and incomplete combustion of fossil fuels. Particulate matter (PM) regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

REGULATORY SETTING

Climate change in the Amended Project Area is under the jurisdiction of several agencies including the EPA, the CARB, the BAAQMD, and the NSCAPCD. Each jurisdiction develops rules, regulations, policies, and/or goals to attain the goals or directives imposed upon them through legislation. The following is a summary of current climate change legislation and regulation applicable to the Amended Project Area.

INTERNATIONAL

The Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol governs compounds that deplete O\textsubscript{3} in the stratosphere – CFCs, halons, carbon tetrachloride, and methyl chloroform. The Montreal Protocol provided that these compounds were to be phased out by 2000 (2005 for methyl chloroform). In 1988, the United Nations (UN) and the World Meteorological Organization established the IPCC to assess “the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation”.8

On March 21, 1994, the United States joined a number of countries around the world in signing the UN Framework Convention on Climate Change (UNFCCC). Under the UNFCCC, governments “gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.”9

A particularly notable result of UNFCC efforts was a treaty known as the Kyoto Protocol. Countries sign the treaty to demonstrate their commitment to reducing GHG emissions or to engaging in emissions trading. More than 160 countries (not including the United States) representing 55% of global emissions are currently participating in the protocol. In 1998, United States Vice President, Al Gore, symbolically signed the Kyoto Protocol; however, in order for the Kyoto Protocol to be formally ratified, the United States Congress must adopt it, which has not occurred.

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Federal

Supreme Court Ruling

The EPA is the Federal agency responsible for implementing the Clean Air Act (CAA). The U.S. Supreme Court ruled in its decision in Massachusetts et al. v. Environmental Protection Agency et al. ([2007] 549 U.S. 05-1120), issued on April 2, 2007, that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

Proposed Mandatory Greenhouse Gas Reporting Rule

On April 10, 2009, EPA published their Proposed Mandatory Greenhouse Gas Reporting Rule (Proposed Reporting Rule) in the Federal Register. The Proposed Reporting Rule is a response to the FY 2008 Consolidate Appropriations Act (H.R. 2764; Public Law 110-161), which required EPA to develop “… mandatory reporting of greenhouse gases above appropriate thresholds in all sectors of the economy.” The Proposed Reporting Rule would apply to fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 MT CO₂e or more per year. Facility owners would be required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Proposed Reporting Rule would also mandate record keeping and administrative requirements in order for EPA to verify annual GHG emissions reports.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On April 23, 2009, EPA published their Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act (Endangerment Finding) in the Federal Register. The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of the EPA) should regulate and develop standards for “emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The proposed rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change.

The Administrator proposed the finding that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CCA. The evidence supporting this finding consists of human activity resulting in “high atmospheric levels” of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

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† The Federal Register is the daily publication for Rules, Proposed Rules, and Notices of the Federal Government
The Administrator also proposed the finding that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The proposed finding cites that in 2006, motor vehicles were the second largest contributor to domestic GHG emissions (24% of total) behind electricity generation. Furthermore, in 2005, the U.S. was responsible for 18 percent of global GHG emissions. Therefore, GHG emissions from motor vehicles and motor vehicle engines were found to contribute to air pollution that endangers public health and welfare.

**Climate Change Action Plan**

In October 1993, President Clinton announced his "Climate Change Action Plan," with the goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives, relying on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. As of September 2009, 33 states had completed comprehensive Climate Action Plans and three states had plans in progress that detail the steps that each state can take to reduce their contribution to climate change. However, without specific targets for emissions reductions, incentives for cleaner technologies, or other clear policies, climate action plans cannot achieve real reductions in GHG emissions.\(^{11}\)

**STATE**

**California Code of Regulations Title 24**

Although not originally intended to reduce GHG emissions, California Code of Regulations (CCR) Title 24 Part 6: California’s Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and incorporation of new energy efficiency technologies and methods. The latest amendments were made in October 2005; however, the effective date for the 2008 Building Energy Efficiency Standards is January 1, 2010. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

**California Assembly Bill 1493**

AB 1493 (Pavley) enacted on July 22, 2002, required the CARB to develop and adopt regulations that reduce GHG emissions emitted by passenger vehicles and light duty trucks. Regulations adopted by the CARB applies to 2009 and later model year vehicles. The CARB estimates that the regulation will reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030 (CARB, 2004).

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Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005 through Executive Order S-3-05, GHG emission reduction targets as follows:

- Reduce GHG emissions to 2000 levels by 2010
- Reduce GHG emissions to 1990 levels by 2020
- Reduce GHG emissions to 80% below 1990 levels by 2050

Some literature equates these reductions to 11% by 2010 and 25% by 2020. The Climate Action Team (CAT) Report to the Governor in 2006 contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

California Assembly Bill 32

In 2006, the California State Legislature adopted the California Global Warming Solutions Act of 2006 (AB 32). AB 32 focuses on reducing GHG in California. GHG as defined under AB 32 include CO₂, methane, N₂O, HFCs, PFCs, and SF₆. AB 32 requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. AB 32 also charged the CARB with the task of developing, with public input, a plan for reducing GHG emissions and implementing that plan by January of 2012.

The CARB published its final report for Proposed Early Actions to Mitigate Climate Change in California, which describes recommendations for discrete early action measures to reduce GHG emissions in October 2007. The measures included are part of California’s strategy for achieving GHG reductions under AB 32. One of the sources for the potential measures includes the CAT Report. Three new regulations are proposed to meet the definition of “discrete early action GHG reduction measures,” which include the following:

- A low carbon fuel standard (LCFS)
- Reduction of HFC-134a emissions from non-professional servicing of motor vehicle air conditioning systems
- Improved landfill methane capture

CARB estimates that by 2020, the reductions from those three measures would be approximately 13 to 26 MMTCO₂e.

Pursuant to AB 32, on November 16, 2007 the CARB released the statewide GHG emissions level for 1990 as 427 MMTCO₂e, and staff recommended approval of a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. The CARB unanimously approved the staff’s proposed 1990 GHG emissions level and the 2020 GHG emissions limit on December 6, 2007 with Resolution 7-55. Staff estimated that a reduction of approximately 12% would be needed to reduce 2004 levels to 1990 levels.

Under AB 32, the CARB has the primary responsibility for reducing GHG emissions. However, the CAT Report contains strategies that many other California agencies can implement. California is also exploring the possibility of cap and trade systems for GHG. The Market Advisory Committee to CARB published draft recommendations for designing a GHG cap and trade system for California (CARB, 2007).
California Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the California Energy Commission (CEC) was tasked with establishing a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO₂ per megawatt-hour). A “new long-term commitment” refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state’s publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO₂ per megawatt hour.

Executive Order S-01-07

Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. Essentially, the order mandates the following:

- A statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020
- A LCFS for transportation fuels be established for California

California Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20% of their supply from renewable sources by 2017. This target date was moved forward by SB 1078 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1% each year. The outcomes of this legislation will impact regional transportation powered by electricity.

California Senate Bill 97

The provisions of SB 97 enacted in August 2007 as part of the State Budget negotiations direct the Office of Planning and Research (OPR) to propose California Environmental Quality Act (CEQA) Guidelines advising lead agencies how to mitigate the impacts of GHG emissions. OPR has been directed to promulgate such guidelines by July 2009, and the Natural Resources Agency has been directed to adopt such guidelines by January 2010. At this time, however, there are no adopted CEQA Guidelines or other formal direction from regulatory agencies regarding the analysis of GHG emissions.
Draft CEQA Guideline Amendments for Greenhouse Gas Emissions

On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines for GHG, as required by SB 97. These proposed CEQA Guideline amendments would provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The Natural Resources Agency will conduct formal rulemaking in 2009, prior to certifying and adopting the amendments, as required by SB 97.¹²

Generally, the proposed Guidelines seek to apply CEQA’s existing basic rules for impact analysis to the topic of GHG, specifying in several instances, for example, that determinations on GHG emissions must be supported by substantial evidence, as with other CEQA determinations. Under the Preliminary Draft CEQA Guideline amendments, changes to the CEQA Guidelines address determination of a project’s incremental contribution to a cumulative effect, determining the significance of impacts from GHG (proposed Guideline 15064.4), consistency with plans, mitigation measures related to GHG emissions (proposed Guideline 15126.4), and tiering from an EIR. The Preliminary Draft CEQA Guideline amendments for GHG do not propose a particular threshold of significance to be applied in determining whether a project’s contribution to global climate change is significant. Lead Agencies would retain discretion to establish thresholds of significance based on individual circumstances.

Senate Bill 375 - Redesigning Communities to Reduce Greenhouse Gases

SB 375 encourages housing and transportation planning on a regional scale, in a manner designed to reduce vehicle use and associated GHG emissions. It requires the CARB to set regional targets for the purpose of reducing GHG emissions from passenger vehicles for 2020 and 2035. Once plans and strategies are in place to meet the SB 375 targets, certain projects in these regions can be relieved of specific review requirements of the CEQA. The targets apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs), including the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area. The MTC developed the Metropolitan Transportation 2035 Plan (MTP), adopted April 22, 2009) with the AB 32 GHG reduction targets in mind; however, MTC’s Regional Transportation Plan (RTP) update for 2013 would be the first MTC plan subject to SB 375.¹³

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the RTP that sets forth a vision for growth for the region while taking into account transportation, housing, environmental, and economic needs. The SCS will be the blueprint by which the region will meet its GHG emissions reductions target if there is a feasible way to do so. The MPOs also will be required to prepare an alternative planning strategy with alternative development patterns, infrastructure, or additional transportation measures or policies to meet identified targets.

Regional Targets Advisory Committee

Per SB 375, CARB appointed a Regional Targets Advisory Committee (RTAC) on January 23, 2009, to provide recommendations on factors to be considered and methodologies to be

used in CARB’s target setting process. RTAC submitted the final report to CARB on September 29, 2009. CARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010.\(^\text{14}\)

RTAC recommended that regional targets be expressed as a percent per-capita GHG emission reduction from a 2005 base year. CARB would use an interactive process with MPOs to set a single statewide uniform target that could be adjusted up or down to respond to regional differences. Any adjustment would be subject to a “reasonably tough test”. This process must ensure that targets are the most ambitious achievable for that region. The process will also involve expert consultation and interaction with stakeholders, the public and other state agencies.

The RTAC also analyzed the role of travel demand models and Best Management Practices (BMPs) in the target setting process. At the conclusion of its discussions, the RTAC agreed to the following:

1. All MPOs employ travel modeling, and the results of the modeling with respect to GHG emissions will be made publicly available.

2. RTAC supports the use of a list of accepted best management practices, or BMPs for:
   - One of several tools to be used in target setting
   - GHG reduction strategy development
   - Target compliance demonstration by small MPOs in the first round and as an action plan to supplement model compliance by all MPOs
   - CARB to use as an accuracy check on each MPO’s submittal as part of its strategy approval process
   - A user-friendly tool to facilitate public review of the GHG reduction strategy for all MPOs

3. RTAC discussed the option of recommending that all MPOs have the option of using the BMP list as the sole method of demonstrating compliance, and could not come to resolution. Prior to CARB deciding on this option, RTAC recommends CARB consider all pros and cons related to this decision as discussed at the July 22, August 5 and 18, and September 1, 2009 RTAC meetings.

\textit{Additional California Climate Change Initiatives}

The Western Regional Climate Action Initiative (Initiative) was signed on February 26, 2007 by five states: Washington, Oregon, Arizona, New Mexico, and California. The Premiers of British Columbia, Manitoba, Ontario, and Quebec, and the Governors of Montana and Utah have since joined the original five states. The Initiative calls for collaboration to identify, evaluate, and implement ways to reduce GHG emissions in the states collectively and to achieve related co-benefits. The Initiative has issued recommendations for the design of a regional cap and trade program, and in 2009 set a regional cap. In addition, a multi-state registry will track, manage, and credit entities that reduce GHG emissions. California is also

exploring the possibility of cap and trade systems for GHG. The Market Advisory Committee to CARB published draft recommendations for designing a GHG cap and trade system for California.

**REGIONAL**

**Bay Area Air Quality Management District**

Most of the Amended Project Area is under the jurisdiction of the BAAQMD. The BAAQMD is responsible for implementing emissions standards and other air quality regulations governing activities in the Amended Project Area. The BAAQMD endeavors to protect and improve public health, air quality, and the global climate and create a healthy breathing environment for every Bay Area resident. The BAAQMD is governed by a 22-member Board of Directors composed of locally elected officials from each of the nine Bay Area counties. The number of board members from each county is proportionate to its population.

The BAAQMD Board oversees policies and adopts regulations for the control of air pollution within the district. The Board also appoints the Air District’s Executive Officer/Air Pollution Control Officer, who implements Board policies and gives direction to staff, as well as the District Counsel, who manages the legal affairs of the agency. The BAAQMD consists of over 350 staff members, including engineers, inspectors, planners, scientists, and other professionals.

**BAAQMD 1999 CEQA Guidelines**

The BAAQMD’s current CEQA guidelines were adopted in December, 1999 and do not include guidance on the evaluation of impacts related to global climate change or GHGs. The BAAQMD Draft CEQA Guidelines released in September 2009 (BAAQMD Draft Guidelines), however, provides ample guidance. In the absence of any other regulations pertaining to GHG, the BAAQMD Draft Guidelines will serve as basis for the evaluation of the proposed Amendment.

**BAAQMD 2009 Draft CEQA Guidelines**

The BAAQMD Draft Guidelines recommend the use of an efficiency-based metric to evaluate general and area plans, combined with reliance on local action plans designed to reduce GHG emissions. Such an analysis enables comparison of general plans of different sizes and in different jurisdictions to a uniform GHG efficiency threshold, and allows comparison of general plans throughout the San Francisco Bay Area Air Basin (BAAB) to one another. It will also provide guidance for decision-makers regarding whether the general plan would substantially help or hinder the State’s ability to attain GHG emission reduction goals identified in AB 32.

**Northern Sonoma County Air Pollution Control District**

Only the northernmost 60 acres of the Added Area falls within the jurisdiction of the NSCAPCD. NSCAPCD sets rules and regulations to achieve and maintain such levels of air quality as will protect human health and safety; prevent injury to plant and animal life; avoid

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damage to property; and preserve the comfort, convenience, and enjoyment of the natural attractions of the California North Coast Air Basin (NCAB). Because the latest amendments to the NSCAPCD Rule Book were made on April 1, 2001, NSCAPCD currently does not regulate or give guidance on GHG emissions or global climate change.

**Sonoma County Community Climate Action Plan**

The Sonoma County Community Climate Action Plan (CCAP) is the third step in a five-step program to reduce GHG emissions throughout all of the County. The program is being followed by all nine Sonoma cities, the County and the Sonoma County Water Agency (Water Agency). The steps are:

1. Produce an inventory of the County’s GHG emissions. This was completed by the Climate Protection Campaign in 2005.

2. Set a GHG emissions reduction target. In 2005, the County and the nine cities within it adopted the country’s most aggressive target to reduce GHG emissions: 25% below 1990 levels by 2015.

3. Develop the CCAP, the blueprint to help the County achieve this emissions target. The Climate Protection Campaign completed this Plan in November 2008.

4. Implement the actions outlined in the CCAP. This is an ongoing process occurring in each of the participating jurisdictions.

5. Monitoring process to ensure the reduction target is met. The Climate Protection Campaign conducts annual inventories of the County’s GHG emissions.

**LOCAL**

**Town of Windsor General Plan**

The General Plan contains several sections that include policies relevant to climate change. The Environmental Resources chapter includes Air Quality and Energy sections that are closely tied to climate change. The Transportation chapter also contains many goals and policies relevant to climate change that will be discussed in Chapter 6.10 (Transportation and Circulation) of this Draft EIR.

**Air Quality**

While the BAAQMD already imposes numerous regulations to deal with stationary and mobile sources of air emissions, there is much the Town can do to benefit regional and local air quality. The primary purpose for including an Air Quality section in the General Plan is to coordinate the planning of land use, circulation, housing, and other Town policies in order to support regional efforts at improving air quality. The Air Quality section contains the following Policies and Implementation Programs relevant to GHG emissions. Each applies to all redevelopment activities in the Amended Project Area:

**Policies**

G.2 Encourage land use patterns and management practices that conserve air and energy resources.
G.2.1 The Town shall promote a more diversified land use pattern that strikes a better balance between jobs and housing in the community, thereby creating opportunities for Windsor residents to work and shop in Town rather than to travel elsewhere for these purposes.

G.2.2 The Town should encourage higher residential densities and business development intensities at existing and future transit stops in order to promote transit ridership.

G.2.3 The design of new residential neighborhoods should incorporate neighborhood centers that provide local retail, public, or recreational facilities that are accessible by pedestrians and bicyclists, as well as motorists.

G.2.4 The Town should prepare a comprehensive bicycle plan that provides linkages between residences, shopping areas, places of employment, and social and cultural events and affords the opportunity to not use a motorized vehicle.

G.2.5 The Town should support and participate in regional efforts to promote and offer carpooling, vanpooling, and other forms of high occupancy vehicles.

G.2.6 The Town should promote energy conservation/energy efficiency improvement programs which have the added benefit of reducing energy demand from power-generating facilities which contribute to background levels of regional air emissions.

Implementation Programs

G.2 General Plan and Zoning Ordinance. The Land Use Plan Map and recommended zoning ordinance changes embody the policies to create a more balanced community and to strategically locate higher intensity uses. General plan amendments or rezonings that undermine these objectives should be carefully assessed during the review process. (Planning)

G.3 Bicycle Facilities. The Town shall prepare a Comprehensive Bikeway Plan that will recommend appropriate routes, standards, and facilities. The Town in the design of its public spaces and in its review of development applications shall encourage the provision of pedestrian and bicycle paths, as well as bicycle storage facilities, consistent with the Comprehensive Bikeway Plan. (Planning, Engineering)

G.4 Inter-jurisdictional Coordination. The Town shall continue to participate in County and regional programs to expand transit services and to increase transit ridership and the average number of occupants per vehicle. (Town Manager, Planning, Engineering)

G.5 Energy Conservation Programs. In its review of development applications, the Town shall educate and encourage project applicants to consider more energy-efficient equipment, as described in Section H, Energy, below. (Planning, Engineering, Building)

Energy

The Town has a commitment to a sustainable energy future by replacing near total dependence on imported, nonrenewable energy resources with renewable energy resources available within the Town. The General Plan Energy section establishes guidelines for the
managed use and conservation of imported energy supplies and discusses the potential for use of locally available alternative energy resources. The General Plan contains the following policies and implementation programs regarding energy resources:

Policies

H.1 Encourage land use patterns and management practices that conserve energy resources.

H.1.1 The Town should promote creation of a land use pattern that reduces operational energy requirements, especially for transportation purposes, by:

a. Avoiding land use configurations and siting decisions which result in single-purpose automobile trips, and instead encourage patterns which result in multi-purpose trips.

b. Promoting land use patterns which may be easily served by local transit and linked with regional transit.

c. Promoting land use patterns which provide employment opportunities for Windsor residents.

H.1.2 New development in Windsor should provide for solar access, both for residential and nonresidential land uses, and should encourage the use of solar easements to guarantee access.

H.1.3 Energy conservation standards for new residential construction, as contained in Title 24 of the California Code of Regulations, shall be periodically reviewed to identify opportunities for adopting standards which more closely respond to local conditions, especially in the area of passive design to reduce cooling loads.

H.1.4 New residential development including subdivisions should be required to consider opportunities for passive heating and cooling.

H.1.5 Parking lots should be landscaped to provide shade in the summertime and allow solar access to adjacent buildings and sidewalks in the wintertime.

H.1.6 Energy conservation measures, such as insulation and weather-stripping, should be encouraged in existing structures through public education and financial assistance to low-and moderate-income families.

H.1.7 Energy conservation measures should be encouraged in new commercial and industrial complexes, and opportunities to increase energy efficiency and the use of renewable resources should be promoted.

H.1.8 The Town government should be in the forefront of energy conservation efforts by undertaking and publicizing energy efficiency and renewable energy resource programs.
Implementation Programs

H.1 Energy Conservation Development Incentives. The Town shall consider reducing automobile parking area requirements for new developments in exchange for owner-supplied transit, in-lieu fee payments for public transit, vegetation that shades bicycle routes and parking lots in the summer, and other amenities such as secure bicycle storage facilities. (Planning, Engineering)

H.2 Energy Information Program. Energy conservation and renewable energy resource development techniques suitable for use in existing residences shall be publicized by the Town through the library and schools. (Building)

H.3 Energy Regulations. The Town shall continue to enforce state energy regulations governing energy consumption and use of solar and other renewable energy resources in existing and new development. (Planning, Building)

H.4 Design Guidelines. The Town shall establish design guidelines to increase the opportunity for passive energy use and future use of renewable energy sources. These guidelines should address solar use, building orientation for solar energy use and winds, orientation or provision of adequate structural support for solar collectors, appropriate trees for landscaping, and use of cogeneration facilities. (Planning, Engineering, Building)

H.5 Review of Town Energy Consumption. The Town shall review its own energy consumption performance and develop programs to increase its energy efficiency. (Administrative Services, Community Services, Public Works)

H.6 Energy-Efficient Purchasing Procedures. The Town should purchase energy-efficient automobiles and other equipment. (Administrative Services)

Town of Windsor Green Building Ordinance

Chapter 5, Title VII - Housing and Building of the Town of Windsor Municipal Code (Municipal Code) serves as the Town’s Green Building Ordinance. The purpose of the ordinance “is to enhance the public health and welfare and assure that commercial and residential development is consistent with the Town’s desire to create a more sustainable community by incorporating green building measures into the design, construction, and maintenance of buildings and appurtenant development. The green building practices are designed to” encourage resource conservation, reduce waste generated by construction projects, and increase energy efficiency.

Mandatory requirements apply to:

- All new residential buildings
- Residential additions equal to or greater than 500 square feet (sf) of conditioned floor area
- Reconstruction of buildings in which more than 50% of the existing building is remodeled or demolished of any size
- Replacement of any appliance or fixture when a permit is required
New residential buildings shall achieve a minimum of 50 points on the GreenPoint rating system. Remodels and additions of 500 sf of conditioned space and reconstruction of buildings of 50% or more shall achieve a minimum of 25 points on the GreenPoint rating system. Commercial buildings must achieve a minimum of 20 credits in the Leadership in Energy and Environmental Design (LEED) rating system.

**Town of Windsor Greenhouse Gas Emissions Reduction Action Plan**

The Town is implementing the International Council for Local Environmental Initiatives (ICLEI) program to reduce the GHG emissions from Town controlled sources.

This program has five steps, referred to as Milestones. Milestone 1, creating the baseline GHG emissions inventory, and Milestone 2, setting an emissions reduction target for the forecast year have been completed. The Town Council has adopted a reduction target of 20% below 1990 levels by 2010. Milestone 3 requires the creation of a plan to meet this target. The ERAP (July 2008) was prepared to establish a plan to satisfy Milestone 3 providing measure-specific plans to reduce GHG emissions. On August 20th, 2008 the Town Council adopted the ERAP and selected Plan D for implementation. The framework associated with the final action plan will support the Town in meeting the requirements of Milestone 4 (implementation) and Milestone 5 (monitoring and adjustment). The framework facilitates the integration of new and revised information, taking advantage of new opportunities and allowing adjustments to under-performing initiatives.

The ERAP Plan D includes a total of 17 measures. It results in a 26.2% GHG emissions reduction below 2000 levels.

**EXISTING CONDITIONS**

**MUNICIPAL EMISSIONS**

All Sonoma cities and the County have adopted global warming pollution reduction targets and have committed to developing action plans. The first step, creating the inventory of emissions produced by the internal municipal operations, has been completed for all cities and the county. The Town of Windsor emissions by sector are 70% for wastewater, 11% for street lighting, 10% for buildings, 5% for the Town fleet, and 4% for employee commute.

The total emissions for 2000 are 2,068 tons of CO$_2$e. Solid waste provides a GHG credit as the waste facility utilized by the waste contractor is equipped to gather and utilize the methane produced. There have been significant increases of GHG emissions since the baseline year of 2000 identified from billing data through 2007, the last available data.

**COMMUNITY-WIDE EMISSIONS**

GHG emission inventories for all Sonoma cities and the County were completed in 2003. The Town participates in the CCAP, which has measured and is monitoring community-wide GHG emissions. Windsor produced 2,801 tons CO$_2$e in 2000, and as of 2007 had increased

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16 Town of Windsor, Town Council Resolution No. 2349-08.
17 This approach is consistent with the ICLEI methodology for solid waste.
to 3,376 tons CO$_2$e, almost all from electrical usage. However, the County overall experienced a slight reduction, from 13,991 tons CO$_2$e to 13,671.\textsuperscript{18}

ENVIRONMENTAL IMPACTS

METHODOLOGY

Redevelopment programs and projects are intended to eliminate blight and blighting conditions within the Amended Project Area that currently prevent the full and effective use of the land. Because redevelopment encourages development of blighted and underutilized properties to uses consistent with the General Plan, thresholds of significance have been selected that are appropriate for programmatic documents. No specific projects have been identified; therefore, the following activities were evaluated at the programmatic level:

- Property acquisition and land assemblage
- Demolition or rehabilitation of structures
- Installation of streets, utilities, and other public facilities and infrastructure
- Funding construction and development assistance for community centers, recreation centers, childcare centers, parks, urban design plans, master plans, streetscapes and facility improvements
- Financial development assistance for private projects
- Construction of affordable housing

Short-term GHG emissions during construction and long-term cumulative impacts during operation were programmatically considered, including intermittent mobile or stationary construction equipment emissions and construction and vehicular emissions. The specific location and intensity of the development in the Amended Project Area that could cause such impacts over the extended period of the Amendment is for the most part unknown – except that all development must be consistent with the General Plan and that most of the Amended Project Area is residentially or commercially developed. Potential GHG emissions impacts in this section are therefore based on anticipated General Plan development resulting from the removal of barriers to development and the recycling of existing properties.

THRESHOLDS OF SIGNIFICANCE

Significance criteria are the basis for determining whether the Amendment would result in significant short-term or long-term impacts to local and regional air quality conditions. GHG emissions from redevelopment and redevelopment-engendered development could contribute to global climate change during construction and as a cumulative contribution to community-wide emissions.

Construction Emissions

According to the 2009 BAAQMD Draft CEQA Guidelines, the threshold of significance for construction-related GHG emissions is the presence of BMPs. If the plan does not include the most recent BAAQMD recommended BMPs in goals, policies, and objectives, as appropriate, construction-related GHG emissions would result in a significant impact.

The Threshold of Significance for construction-related GHG emissions is the presence of the following performance-based best management practices:

- Alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15% of the fleet
- Local building materials of at least 10%
- Recycle at least 50% of construction waste or demolition materials

Project-Level Operational Emissions

Land Use Projects

The proposed BAAQMD Threshold of Significance for operational-related GHG emissions for land use projects is 1,100 metric tons per year (MT/yr) of CO₂e. If annual emissions of operational-related GHGs would exceed this level, the proposed project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

The BAAQMD recommends URBEMIS mitigation measures to reduce operational-related emissions of GHGs from mobile, area, and stationary sources. The measures to reduce GHGs include:

- Mixed uses
- Local serving retail within 1/2 mile of a project
- Transit service
- Bike and pedestrian enhancements
- Affordable housing
- Transportation demand management measures such as parking reductions, transit passes, telecommuting programs, bike parking, showers, and/or car pooling
- Area source measures such as exceeding Title 24 requirements, electric equipment, and low-VOC architectural coatings

Non-URBEMIS energy efficiency related measures are also listed specifically targeting GHGs. These include:

- Plant shade trees within 40 feet of the south side or within 60 feet of the west sides of properties.
- Require cool roof materials
- Install green roofs
- Require smart meters and programmable thermostats
- Meet Green Building Code (GBC) standards in all new construction
6.3 CLIMATE CHANGE

- Retrofit existing buildings to meet California GBC standards
- Install solar water heaters
- Install tank-less water heaters
- Install solar panels on residential and commercial buildings
- 100% increase in diversity of land use mix
- 100% increase in design (i.e., presence of design guidelines for transit oriented development, complete streets standards)
- 100% increase in density
- HVAC duct sealing
- Provide necessary infrastructure and treatment to allow use of 50% greywater/recycled water in residential and commercial uses for outdoor irrigation
- Complete streets (i.e., bike lanes and pedestrian sidewalks on both sides of streets, traffic calming features such as pedestrian bulb-outs, cross-walks, traffic circles, and elimination of physical and psychological barriers (e.g., sound walls and large arterial roadways, respectively).)
- Other available measures without quantifiable reductions

Stationary Source Projects

The Threshold of Significance for operational-related GHG emissions for stationary source projects is 10,000 MT/yr of CO2e. If annual emissions of stationary source operational-related GHGs would exceed this level, a project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change. If a land use project includes emissions from engines (e.g., back-up generators) and industrial sources subject to BAAQMD Rules and Regulations, these emissions should be analyzed separately from the land use indirect and area source emissions. Stationary source emissions are not included in the screening estimates given below and must be added to the indirect and area source land use emissions.

Screening Criteria

The BAAQMD has developed screening criteria to provide the Lead Agency and project applicant with a conservative indication of whether the proposed project would result in the generation of operational-related GHGs that exceed the Threshold of Significance. If the project would not exceed the applicable screening level size shown in the proposed CEQA Guidelines Table 2-3 (Proposed CEQA Guidelines, pg. 2-4), the operation of the proposed project would likely result in a less-than-significant cumulative impact to global climate change. Typical operational screening levels include a 56 unit single-family residential project, 78 unit low-rise apartment complex, 53,000 sf general office building, 64,000 sf light industrial building, or 89,000 sf manufacturing plant.

Community-Wide Operational Emissions

Long-term operational impacts to air quality result from the build-out of long range plans and are generally determined by continued operation of land uses allowed in the general or area plan and the vehicle travel behavior associated with these uses. If a general or area plan is adopted pursuant to a certified EIR that considers GHG emissions, and if the plan and its EIR incorporate development policies, performance standards, and mitigation measures
achieving GHG emission reductions, this could alleviate the need to evaluate and mitigate GHG emissions at the project-level for projects that are found to be consistent with the general or area plan.

As opposed to the identification of a bright-line mass emissions threshold (1,100 MT/yr CO\textsubscript{2}e), as is applied to individual projects, BAAQMD recommends the use of an efficiency-based metric to evaluate general and area land use plans, combined with reliance on local action plans designed to reduce GHG emissions. A general or area plan would be assumed to have a less-than-significant impact from GHG emissions if the Lead Agency has prepared and adopted a CAP, or the plan contains goals, objectives and policies that meet criteria below, and has been evaluated pursuant to CEQA and has a certified or approved environmental document.

The CAP (or the area's long range plan) must:

1. Address the entirety of the general or area plan project area
2. Include a base year GHG emissions inventory and GHG emissions projections for 2020 for community-wide and municipal emissions
3. Identify a GHG reduction target that meets or exceeds AB 32 and/or Executive Order S-3-05 reduction targets
4. Specify a range of binding and enforceable GHG emission reduction measures, and demonstrate by way of substantial evidence that these measures, if implemented on a project-by-project basis, would achieve the specified GHG reduction target
5. Establish a mechanism to monitor the plan’s progress toward achieving the GHG reduction target and require amendment if the plan does not meet the specified level

The County has completed the CCAP (November 2008) that incorporates all cities and the County, including the Town of Windsor. The Town has endorsed and participates in the CCAP, which has set a 25% GHG reduction target by 2015. The Climate Protection Campaign has updated the community-wide inventory each year since 2005 when it completed the GHG baseline for the County.

**PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES**

*Impact 6.3-1 Redevelopment engendered development and infrastructure construction activities would generate greenhouse gas emissions that could contribute to global climate change. This would be a potentially significant impact.*

With future development and infrastructure demolition and construction in the Amended Project Area, GHG emissions would be emitted by construction equipment and the combustion of fossil fuels for construction vehicles and tools, construction vehicle trips, grid-delivered electricity for lighting and equipment, and construction waste. Construction activities are regulated by the Town and the BAAQMD. Construction in the Amended Project Area over the life of the Amendment will include demolition of some structures and grading preparation for all new construction. As noted above, according to the 2009 BAAQMD Draft CEQA Guidelines, the threshold of significance for construction-related GHG emissions is the presence of BMPs. Whereas the current General Plan does not include the most recent BAAQMD recommended BMPs in goals, policies, and objectives, as
appropriate, construction-related GHG emissions from redevelopment activities would result in a potentially significant impact.

**Mitigation**

6.3-1 All redevelopment construction activities shall implement the most current BAAQMD performance-based best management practices, including but not limited to:

a) Alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15% of the fleet

b) Local building materials of at least 10%

c) Recycle at least 50% of construction waste or demolition materials

**Significance after Mitigation**

Less than significant

**Impact 6.3-2** Individual redevelopment-assisted development projects could produce greenhouse gas emissions that contribute to global climate change. This would be a less-than-significant impact.

The primary sources of GHG emissions generated within the Amended Project Area are anticipated to be combustion of fossil fuels for operational vehicle trips, from grid-delivered electricity for lighting, appliances, and building cooling, and from building heating with natural gas. Even very large individual projects cannot generate enough GHG emissions to influence global climate change. However, each project makes an incremental contribution to GHG that, when combined with the cumulative increase of all other sources of GHG, can be considered to affect global climate change. While there are no specific significance thresholds, future projects can work towards the goals of AB 32 and Governor Schwarzenegger’s Executive Order S-3-05 by implementing a range of strategies to mitigate a project’s short-term and long-term contributions of GHG.

The Town has adopted a CAP for municipal emissions, and has endorsed and is participating in the Sonoma community-wide CCAP. Windsor and the other participating jurisdictions in the CCAP are currently initiating the recommended implementation measures. The Town has adopted the Green Building Ordinance and energy efficiency programs as well as programs to generate solar power and other renewables. The Green Building Ordinance requires all new commercial construction to exceed Title 24 by achieving 20 LEED points, and residential construction is required to achieve 50 Build It Green Points. In addition, the Town is completing a Water Efficiency Landscaping Ordinance. These requirements have been determined by the Town to ensure efficient quality construction that should mitigate project-by-project GHG emissions. Similarly, the Town’s other local agencies, businesses, and schools have embarked on programs to reduce GHG emissions.

Projections of contributions of the major solutions toward the total reduction (1.4 million tons) are based on the following assumptions:

- Energy Efficiency: 80% of Sonoma County homes and commercial spaces can be retrofitted with all economically feasible efficiency improvements.
6.3 CLIMATE CHANGE

- **Renewable Energy Production:** Build a low-carbon electricity portfolio with 67% new local renewables, including natural gas replacement and efficiency retrofit.
- **Transportation:** Trip reduction, average trip length reduction, and shifting from single occupant vehicles to public transit, walking, and bicycling; large scale car share fleet of electric and plug-in hybrid vehicles.

The Town has incorporated the BAAQMD mitigation measures to reduce operational-related emissions of GHGs from mobile, area, and stationary sources into its land use planning and Green Building Ordinance. The Amendment would support mixed-use infill development with local serving retail and transit service within a 1/2 mile throughout the Added Area, would fund transit, bike, and pedestrian enhancements, and would provide at least 20% tax increment set asides for the construction of affordable housing. The Town requires transportation demand management measures such as parking reductions, transit passes, telecommuting programs, bike parking, showers, and car pooling on a project-level basis. The Green Building Ordinance ensures that projects exceed Title 24 requirements, and use electric equipment and low-VOC architectural coatings, as well as other aggressive energy conservation measures.

Redevelopment-engendered development would occur within transit-oriented land use zoning and would be regulated by the Green Building Ordinance, which mitigate GHG emissions in furtherance of the CCAP. Project-by-project review under BAAQMD thresholds would be required to further mitigate individual GHG emissions. Therefore, individual development projects engendered by adoption of the Amendment would result in a less-than-significant increase in GHG emissions.

**Mitigation**

None required

**CUMULATIVE IMPACTS AND MITIGATION MEASURES**

**Impact 6.3-3** The Amendment would engender redevelopment of the Amended Project Area that could contribute to global climate change. This would be a less-than-significant cumulative impact.

The passage of AB 32 – The California Global Warming Solutions Act of 2006 – requires that the CARB adopt a reduction strategy of rules and regulations to bring GHG emissions to that of 1990 by 2020. The BAAQMD’s proposed CEQA Guidelines recommends reliance on local CAP designed to reduce GHG emissions. The Town has adopted an area-wide CAP, and GHG reduction measures being implemented by the Town include land use strategies such as transit oriented development, compact urban design, circulation improvements to increase non-vehicular modes of transportation, increasing energy efficiency, and conservation/sustainable development measures.

The Amendment would serve as an implementation tool for many such strategies. Existing land uses within the Amended Project Area currently consist of many older structures built to lower energy efficiency standards. In the County today over 90% of electricity and natural gas is used by the County’s approximately 200,000 residential and 30,000 business accounts. The most cost-effective means identified in the CCAP to reduce GHG emissions in the electricity/natural gas sector is to increase the energy efficiency of these existing buildings. The CCAP determined that a full retrofit of 80% of all existing residential and
commercial electricity/natural gas customers is required to achieve the highest level of energy efficiency available. The Amendment may fund rehabilitation of existing structures within the Amended Project Area to bring them up to code and increase energy efficiency, in furtherance of this strategy. This could replace older lighting systems, appliances, and heating, ventilating, and air conditioning (HVAC) systems with energy efficient systems.

The proposed Amendment would remove barriers to infill development within the Amended Project Area. Housing assistance programs are intended to both increase affordability and improve the jobs-housing balance near Downtown. The Amended Project Area is urbanized, with some parcels that are underutilized or previously developed. The largest opportunity areas for recycling of properties for new development are located in areas designated for mixed-use, transit oriented redevelopment consistent with the Town of Windsor Downtown Plan (Downtown Plan), the Shiloh Road Village Vision Plan, and the Old Redwood Highway (ORH) Vision Plan. Redevelopment is intended to encourage transit and pedestrian oriented development close to jobs and services, reducing GHG through design; all portions of the Amended Project Area are located within a ½ mile of transit. The Amendment would remove both fiscal and physical barriers to infill development through the proposed parcel consolidation, development, and infrastructure programs to eliminate blight.

The greatest amount of new development is anticipated in the Added Area under the Shiloh Road Vision Plan and the ORH Vision Plan. These two Vision Plans have been recognized by the Institute for Local Government in partnership with CARB as a Bay Area Climate Action Example. They provide a pedestrian/transit oriented conceptual overlay on the existing General Plan land uses, to encourage commercial and mixed-use residential development consistent with the goals and objectives of the Town. Most parcels have some kind of existing low-density residential, commercial, or industrial use, and few exceed one acre. Redevelopment could encourage the consolidation of smaller parcels into larger development that would be constructed under updated code requirements and subject to GHG mitigation requirements appropriate at the time they are developed.

The Amendment must be consistent with the Windsor General Plan and Specific Plans, and there are no land use changes or specific projects proposed. Redevelopment is an implementation action of the General Plan, and the Amendment removes barriers to implementation of the Town’s sustainability programs. New construction would be required to be consistent with the General Plan and the Downtown Plan, the Shiloh Road Village Vision Plan, and the ORH Vision Plan, which encourages land use patterns that reduce reliance on the automobile and encourages alternative modes of transportation for travel to employment and shopping, as well as pedestrian-oriented and transit-oriented design in new development. Therefore, the Amendment would assist in reducing the existing levels of GHG in the Amended Project Area, consistent with the objectives of Executive Order S-3-05 and the CCAP, and would have a less-than-considerable cumulative impact on global climate change.

**Mitigation**

None required

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6.4 CULTURAL AND HISTORIC RESOURCES

INTRODUCTION

This Subchapter of the Environmental Impact Report (EIR) identifies the historic setting and cultural resources in the proposed Amended Windsor Redevelopment Project Area (Amended Project Area) for the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). The potential cultural resource impacts of adding territory (Added Area) and extending redevelopment in the Existing Project Area for an additional 10 years are assessed programmatically, based on existing documentation for the Amended Project Area, such as the Town of Windsor Historic Register (Historic Register).

There was one response to the Notice of Preparation (NOP) received regarding cultural resources. The Native American Heritage Commission (NAHC) provided recommendations for conducting a cultural resources record search and Sacred Lands File Check, and mitigation measures for unknown subsurface resources.

SETTING

The Windsor community is located in the northern end of a valley, the Santa Rosa Plain, between two ridges of the Coast Range Mountains. Hills and ridges to the east, west, and north, and its many oak trees visually define the Town of Windsor (Town). The proposed Amended Project Area includes the older, developed portions of the Town, with a mix of land uses including residential, commercial, industrial, and public uses. Several major creek corridors cross the Town with areas of dense riparian woodland.

PREHISTORIC BACKGROUND

Fredrickson (1974) divided human history in California into three broad periods: the Paleoindian period, the Archaic period, and the Emergent period. This scheme used sociopolitical complexity, trade networks, population, and the introduction and variations of artifact types to differentiate between cultural units. The significance of prehistoric sites rests partly on their ability to help archaeologists explain the reasons for these changes in different places and at different times in prehistory. This scheme provides the analytical framework for the interpretation of the San Francisco Bay and North Coast Ranges prehistory, and with minor revisions (Fredrickson, 1994), remains the dominant framework for prehistoric archaeological research in this region.

The Paleoindian period (10,000 to 6000 B.C.) was characterized by small, highly mobile groups occupying broad geographic areas.

During the Archaic period – consisting of the Lower Archaic period (6000 to 3000 B.C.), Middle Archaic period (3000 to 500 B.C.), and Upper Archaic period (500 B.C. to A.D. 1000) – geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The addition of milling tools, obsidian and chert concave-base points, and the occurrence of sites in a wider range of environments suggests that the economic base was more diverse.
By the Upper Archaic, mobility was being replaced by a more sedentary adaptation in the development of numerous small villages, and the beginnings of a more complex society and economy began to emerge. During the Emergent period (A.D. 1000 to 1800), social complexity developed toward the ethnographic pattern of large, central villages where political leaders resided, with associated hamlets and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched points, mortars and pestles, and a diversity of beads and ornaments (Fredrickson, 1994; Gerike et al., 1996).

**ETHNOGRAPHIC BACKGROUND**

Ethnographic literature indicates that at the time of historic contact, the Amended Project Area was within the territory of the Southern Pomo-speaking peoples, which extended from approximately five miles south of Santa Rosa northward to approximately the Sonoma–Mendocino County border, and from the eastern drainage of the Russian River westward to Southwestern Pomo, or Kashaya territory. The closest ethnographic village site was Tsolikawi or East Windsor, located to the east of the Amended Project Area.

The primary sociopolitical unit was the village community, or tribelet. Pomo village communities consisted of a principal village, where the chief resided, surrounded by several secondary settlements. Each village community averaged around 100 to 2,000 people. Within Southern Pomo tribelet territories, people were allowed to freely hunt, fish, and gather plant foods. Tribelet boundaries, however, were clearly defined in regards to rights of utilization of their territory by other groups. Beginning around 1800, the Southern Pomo people were significantly diminished through missionization, Mexican slave raids, disease, and immigrant settlement in their territory.¹ ²

**HISTORIC BACKGROUND**

**Historic Setting of the Town of Windsor**

The Town was founded in 1855 and situated originally on the county road leading from Santa Rosa to Healdsburg east of the present United States Highway 101 (US Highway 101). Settlement was spurred by the Gold Rush in northern California starting in 1849, which prompted such activities as fruit and grain cultivation, vineyards, ranching, and dairy farming. Windsor was named for its majestic oak trees that reminded early settlers of the Windsor countryside in England. In 1854, Hiram Lewis established the first post office for the Town’s population of approximately 250 people. In 1872, the San Francisco-Northern Pacific Railroad was extended through the Town. The rail activity triggered the establishment of a new commercial and retail center to the west of the original town site, next to the railroad tracks.³

The Windsor area remained a rural, agricultural community throughout the latter part of the 19th century and the first half of the 20th century. During World War II, a U.S. Army air base (now the Sonoma County Airport) was built in Windsor, and fighter planes were a familiar sight and sound day and night. In 1943, a German prisoner of war (POW) camp was established west of Downtown Windsor, and captured German submarine crews and

³ Town of Windsor Building and Planning Department (1996).
members of the Africa Corps were brought to the camp, where they worked on local farms. The camp closed shortly after the war ended, and all that remains now are the foundations.

Windsor was primarily agricultural throughout most of the 1900s, with wine grapes, hops, and prunes as the primary crops. Little remains of the original Town. The Town’s population and economy grew rapidly from the early 1980s, when housing development blossomed, bringing new families and businesses into the area, with incorporation occurring on July 1, 1992. Figure 6.4-1 shows when development occurred throughout the Amended Project Area.

ARCHAEOLOGICAL RESOURCES IN THE VICINITY

Approximately half of the Town has been surveyed for archaeological resources. Known prehistoric sites consist primarily of stone tool scatters, or locales in which previous inhabitants made and/or used stone tools. These include areas with midden soils that include food refuse and stone tool flakes, indicating previous temporary and permanent habitation sites. Evidence of settlement patterns in the vicinity also includes quarry sites and places of Native American religious significance. The ethnographic village of Tsolikawi and other archaeological resources in the form of materials deposits and subsurface structural features could be present at selected locations throughout the Town. Although the sacred land file managed by the NAHC does not indicate the presence of Native American cultural resources in the vicinity, the Lytton Rancheria Band of Pomo Indians has expressed a commitment to the protection and preservation of Pomo artifacts and archaeological sites. The Tribe requested that special attention be given so as to ensure the protection of previously undiscovered resources and that if any Pomo artifacts or sites were discovered or human remains encountered during the course of project activities, that the Tribe is contacted immediately.

TOWN OF WINDSOR HISTORIC REGISTER

The Town’s Historic Register contains the following nine historic resources:

- Masonic Hall – 371 Windsor River Road
- Gutchell House/Residence – 321 Windsor River Road
- Hembree House – 9225 Foxwood Drive
- Cunningham House – 9229 Foxwood Drive
- Bell Ranch House – 5294 Windsor River Road
- Heritage Bay Tree – Foothill Drive/Cerrada Court
- Shiloh Cemetery – 7100 Windsor Road
- David H. Duvander House – 295 Windsor River Road
- Odd Fellows Hall – 337 Windsor River Road

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4 Windsor Baseline Conditions Report – Environmental Resources, Town of Windsor, June 1993
6 Keiser Park DEIR, Appendix G.
6.4 CULTURAL AND HISTORIC RESOURCES

Data: Sonoma County Assessor, 2009

FIGURE 6.4-1
RESIDENTIAL YEAR BUILT

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Prepared 12/13/2009 by
The Ervin Consulting Group

Data: Sonoma County Assessor, 2009

REDEVELOPMENT AGENCY OF THE TOWN OF WINDSOR
WINDSOR REDEVELOPMENT PROJECT
PROPOSED FIFTH AMENDMENT DRAFT EIR
The Historic Register consists of the list above, the associated assessors' parcel pages, and a text and a picture of each item. Five are located within the Existing Project Area boundaries, as illustrated on Figure 6.4-2.

Although not listed on the register or formally submitted, the 1894 Thomas A. Ward farmhouse and outbuildings at 10860 Old Redwood Highway within the Added Area has been identified as eligible for the National Register of Historic Places (National Register or NRHP).

REGULATORY FRAMEWORK

Historic and prehistoric resources of importance throughout the Town and the County are inventoried and governed by national, state, and local laws and regulations. The regulations that apply to cultural and historic resources in the Town are discussed below.

FEDERAL

National Register of Historic Places

The National Historic Preservation Act of 1966 established the National Register as the official national listing of important historic and prehistoric resources worthy of preservation. The National Register includes districts, sites, buildings, structures, and objects with local, regional, state, or national significance. The definition of historic property includes "any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in, the National Register" (Advisory Council on Historic Preservation, 1986). A historic property must meet specific criteria to be considered eligible for listing on the National Register.

STATE

California Register of Historical Resources

The State Historic Resources Commission and Office of Historic Preservation (OHP), within the State of California Department of Parks and Recreation (DPR), administer the state’s historic preservation programs. The OHP oversees state agency compliance with state preservation statutes and programs, administers federal preservation programs in California, and state programs such as the California Register of Historical Resources (California Register or CRHR). The California Register is a guide to identifying the state’s historical resources and establishes a list of those properties that are to be protected from substantial adverse change (Public Resources Code (PRC) §5024.1).

The PRC defines a historical resource to include, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (PRC §5010.1(j)).
6.4 CULTURAL AND HISTORIC RESOURCES

Imagery: Bing Maps, 2009

FIGURE 6.4-2
HISTORIC STRUCTURES

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Prepared 9/26/2009 by
The Ervin Consulting Group

1 in = 150 feet

Imagery: Bing Maps, 2009

FIGURE 6.4-2
HISTORIC STRUCTURES
In California, the standard of historical (including archeological) significance is listing in or eligibility for listing in the California Register. The California Register is the authoritative guide to be used by state and local agencies to identify the state’s historical resources (PRC §5024.1(a)). It includes properties nominated to and placed on the California Register by the State Historic Resources Commission, properties listed in or formally determined eligible (under §106 of the National Historic Preservation Act) for listing in the National Register (PRC §5024.1(b) and (d)(1)). Both individual properties and historic districts may be listed in the California Register (PRC §5024.1(e)(1)(2)).

In addition to properties listed, or formally determined eligible for listing, historic resources or districts designated or listed as Town or County landmarks, or locally listed pursuant to any Town or County ordinance, are presumed to be eligible for listing in the California Register unless a preponderance of evidence in the record indicates that it is not historically or culturally significant (PRC §21084.1). Historical resources identified as significant in historical resource surveys conducted by local governments also may be eligible for listing (PRC §5024.1(e)(3)), if the survey meets one or more of the criteria for eligibility set forth in PRC §5024.1(g). Further, if a historical resource is not listed in the California Register, is not designated by a local agency, and is not identified as significant in a historical survey, a lead agency may determine that the resource may be a historical resource as defined in the PRC §5020.1(j) or §5024.1 (California Environmental Quality Act (CEQA) Guidelines, §15064.5(a)(4)).

The criteria for listing in the California Register are defined in statute (PRC §5024.1(C)(1-4)), in the CEQA Guidelines (California Code of Regulations (CCR) Title 14, Ch. 3 §15064.5 (3)(A-D) and in the Guidelines for the California Register (CCR Title 14, Ch. 11.5 §4852(b)(1-4)). These criteria are very similar to the federal criteria for listing in the National Register. The criteria include:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. It is associated with the lives of persons important to local, California, or national history.
3. It embodies the distinctive characteristic of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

One or more of these criteria may apply to a single property or a district.

In addition to meeting the above criteria, a property or district must possess integrity. Integrity is defined as the authenticity of a historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance. A property must retain enough of its historic character or appearance to be recognizable as a historical resource and to convey the reasons for its significance (CCR Title 14, Ch. 11.5 §4852(C)).
LOCAL

Town of Windsor General Plan

The General Plan outlines local policies and implementation programs for the treatment and protection of cultural resources. The General Plan states, “Cultural resources are prehistoric and historic elements or features of the environment that have been manufactured, affected, or altered by human forces. These resources vary from large, historic industrial complexes to turn-of-the-century farmhouses, to small scatters of stone flakes that are residue from prehistoric tool manufacturing. Windsor contains many physical links to its historic and prehistoric past. Historical sites, buildings, and objects are reminders of the Town’s unique heritage and its place in the development of the state and nation. Local cultural resource management programs seek to identify and protect these reminders, consistent with state and federal preservation programs.”

Policies

E.1 Identify and preserve significant cultural or historical sites or structures within the Town.

E.1.1 The Town shall continue to encourage efforts, both public and private, to preserve its historical and cultural heritage by (sic). Property owners shall be encouraged to nominate eligible properties for listing in local, state, and federal registers of historic places.

E.1.2 Significant archaeological and historical resources should be identified and protected from destruction. If evidence of such resources appears after development begins, the developer shall prepare an assessment of appropriate actions to preserve or remove the resources, subject to review and approval of the actions by the Town.

E.2 Promote public awareness of and support for historic preservation, and encourage both visual and physical access to historic properties, whenever appropriate.

E.2.1 The Town should encourage the reuse of architecturally interesting or historical buildings in a manner that preserves their historic architectural merit.

E.2.2 The Town should continue to coordinate with the County, the Northwest Archaeological Information Center, and local historical societies to advance public education efforts regarding the history and heritage of the area.

Implementation Programs

E.3 Referral of Development Proposals. The Town shall continue to require that development proposals be referred to the Northwest Information Center of the California Archaeological Inventory, Sonoma State University, for review and recommendations regarding supplemental field investigation. (Planning)

E.4 Environmental Review. The Town shall require all discretionary proposals to consider the potential to disturb significant prehistoric and historic resources. If the preliminary reconnaissance suggests that significant resources may exist, a
field survey and evaluation will be performed by a qualified professional. Mitigation measures shall be required for any significant impacts identified for important cultural resources. These measures shall comply with the provisions of Appendix K of the California Environmental Quality Act Guidelines. (Planning)

E.5 Data Recovery. Any artifacts collected or recovered as a result of cultural resources investigations shall be catalogued in accordance with the County Museum guidelines and adequately curated in an institution with appropriate staff and facilities. (Community Services, Planning)

Town of Windsor Zoning Ordinance

Windsor Historic Conservation and Preservation Ordinance

Windsor Zoning Ordinance Section 27.20.060 – Historic Conservation and Preservation, outlines procedures “to protect sites and structures identified by the community as historically significant, that contribute to Windsor’s character and identity, and that should be preserved and/or restored.” The ordinance prohibits individuals from altering the exterior of or demolishing a structure without first determining its historic significance and the effects of the proposed alterations. The Town Council can designate an improvement, natural feature, site, or area as an historic district, and procedures and standards are provided in the ordinance to address applications for altering or demolishing historical resources. Sites or structures identified as historic landmarks by the Town are listed in the Town’s Historic Register.

Historic Overlay

Windsor Zoning Ordinance Section 27.16.050 – Historic Overlay, provides for an HO overlay to be “applied to protect structures, sites and areas that are reminders of past eras, events, and people important to the history of the Town. These areas provide significant examples of architecture and styles of the past, which are irreplaceable assets to the Town. These cultural resources are reminders of the Town’s unique heritage and its place in the development of the state and nation.” The HO establishes demolition and development permitting procedures for areas that have been identified as having special historical, architectural, or aesthetic interest or value. Within the Amended Project Area, this overlay applies to the parcels containing the Masonic Hall, the Gutchell House/Residence, and the Bell Ranch House.

Town of Windsor Municipal Code

Article 2. Personal Conduct

5-1-210 Plants, Animals and Historic Material. No person shall remove, harm or destroy any plant, either living or dead, any animal, fish, reptile, amphibian or bird, including nest and/or eggs or disturb, remove or destroy articles or artifacts of historical, archaeological, botanical or paleontological, nature or geological or mineral resources in or from any park, except when permission is granted by Park Authorities.
ENVIRONMENTAL IMPACTS

METHODOLOGY

This analysis is based on research, the General Plan, the Town of Windsor General Plan EIR (GP EIR), the Historic Register, a visual survey of Amended Project Area, and cultural assessments of recent projects within the Amended Project Area. The potential cultural resource impacts of removing barriers to development consistent with the General Plan by adding territory (Added Area) and extending redevelopment in the Existing Project Area for an additional 10 years are assessed programmatically. The analysis is based on existing documentation for the Amended Project Area, such as the Historic Register and the General Plan.

THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines define a “substantial adverse change in the significance of an historical resource” to mean “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, §15064.5, subd. (b)(1)). CEQA Guidelines, §15064.5, subdivision (b)(2), defines “materially impaired” for purposes of the definition of “substantial adverse change.” The significance of a historical resource is materially impaired when a project:

- 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, inclusion in the California Register;
- 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 §5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of §5024.1(g) of the PRC, 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
- 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 as determined by a lead agency for purposes of CEQA (CEQA Guidelines, §15064.5, subd. (b)(2)).

Impacts were considered significant under CEQA if the Amendment would result in an effect that may change the significance of the resource (PRC Section 21084.1), such as demolition, replacement, substantial alteration, or relocation of historic properties.
**PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES**

**Impact 6.4-1** Redevelopment projects and redevelopment engendered development could cause a substantial adverse change in the significance of an archaeological resource, including human remains. This would be a significant impact.

The Amended Project Area is located in an area of the Town that was settled by prehistoric peoples for thousands of years and by historic peoples since 1851, and is anticipated to contain unknown subsurface resources. Given historic patterns of habitation, these resources are located in the Santa Rosa Plain, along the many creeks that traverse the Amended Project Area.

Implementation of the Amendment would include ground disturbing activities – such as infrastructure improvements, grading, trenching, and excavating for development. Infrastructure improvements and new development assisted by redevelopment could encounter cultural resources during construction activities relating to earlier periods of the Amended Project Area’s history. Both prehistoric and historic buried archaeological resources could be exposed during any subsurface construction activities, and such resources and their immediate surrounding matrix could be damaged. Disruption during construction would likely result in the permanent loss of potentially important cultural resource data. Therefore, this is considered a significant impact.

**Mitigation**

For any Agency-funded project within the Amended Project Area, the following mitigation measures shall apply:

6.4-1a For any project involving ground penetrating activities, the Northwest Information Center (NWIC) at Sonoma State University shall be consulted to determine if a proposed project would require archaeological study and/or testing be conducted as part of the site-specific environmental review. Recommended study and/or testing shall be completed prior to the completion of environmental review.

6.4-1b Foremen and key members of major excavation, trenching, and grading for site preparation shall be instructed to be wary of the possibility of destruction of buried cultural resource materials. They shall be instructed to recognize signs of prehistoric use and their responsibility to report any such finds (or suspected finds) immediately, as specified by measure 6.4-1c below, so damage to such resources may be prevented.

6.4-1c Any unanticipated discovery of cultural resources during construction will be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with the Town and appropriate Native American group(s), will develop a treatment plan. All work in the immediate vicinity of the unanticipated discovery shall cease until the qualified archaeologist has evaluated the discovery, or the treatment plan has been implemented.
6.4-1d If human remains are encountered unexpectedly during construction excavation and grading activities, State Health and Safety Code §7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC §5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify the person(s) thought to be the Most Likely Descendent of the deceased Native American, who will then help determine what course of action should be taken in dealing with the remains.

Significance after Mitigation

Less than significant

Impact 6.4-2 Redevelopment projects and redevelopment engendered development could cause a substantial adverse change in the significance of a paleontological resource. This would be a potentially significant impact.

Paleontological resources are the fossilized evidence of past life found in the geologic record. Despite the tremendous volume of sedimentary rock deposits preserved worldwide, and the enormous number of organisms that have lived through time, preservation of plant or animal remains as fossils is an extremely rare occurrence. Because of the infrequency of fossil preservation, fossils—particularly vertebrate fossils—are considered to be nonrenewable resources. Due to their rarity, and the scientific information they can provide, fossils are highly significant records of ancient life. Implementation of the Amendment would include ground disturbing activities such as infrastructure improvements, grading, trenching, and excavating for development. Infrastructure improvements and new development assisted by redevelopment could encounter paleontological resources during construction activities. The possible damage or destruction loss of fossilize resources during construction activities is a potentially significant impact.

Mitigation

6.4-2 If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work will stop in that area and within 25 feet of the find until a qualified paleontologist can assess the significance of the find, and if necessary, develop and implement appropriate treatment measures in consultation with the Town.

Significance after Mitigation

Less than significant

Impact 6.4-3 Redevelopment projects and redevelopment engendered development could result in the alteration of historic resources. This would be a potentially significant impact.

The OHP considers any building over 45 years of age to be a potential historic resource, and there are a large number of structures in the Amended Project Area that currently meet this criterion. More structures will fall into this category over the life of the Amendment. Redevelopment would result in the rehabilitation or relocation of existing structures or site
features over the life of the Amendment. The Historic Conservation and Preservation Ordinance prohibits individuals from altering the exterior or demolishing a historic structure without first determining its historic significance and the effects of the proposed alterations. However, the Ordinance only applies to sites and structures identified by the community as historically significant, and refers to the HO. If an unlisted structure located outside the HO zone and not on the Historic Register were to represent historic resources eligible for listing in the California Register, their damage or inappropriate alteration would represent a potentially significant impact.

Mitigation

6.4-3a As part of any Owner Participation Agreement (OPA), Disposition and Development Agreement (DDA), or other Agency action or project that would affect any structure or feature over 45 years old that has not been evaluated, the buildings shall first be evaluated for eligibility for listing in the California Register. This evaluation shall occur through the preparation of DPR 523 forms for each building, and through standard CEQA evaluation.

6.4-3b If the structure or feature is determined to be eligible for listing in the California Register, the Secretary of the Interiors Standards for the Treatment of Historic Properties shall be applied to insure that treatments will maintain the authenticity and integrity of character-defining historical features.

6.4-3c If the properties are determined to be eligible for listing in the California Register, where rehabilitation involves demolition of feature(s) that do not remove the building from eligibility for the California Register, then the feature(s) shall be recorded to Historic American Building Survey/Historic American Engineering Record (HABS/HAER) standards prior to their removal. Copies of the HABS/HAER documentation shall be filed with the OHP. HABS/HAER recordation typically includes the following:

a. The development of site-specific history and appropriate contextual information regarding the particular resource. In addition to archival research and comparative studies, this task could involve limited oral history collection.

b. Accurate mapping of the resources, scaled to indicate size and proportion of the structures.

c. Photo documentation of the designated resources, both in still and video formats.

d. Recordation by measured architectural drawings, in the case of specifically designed structures of high architectural merit; “as-built” plans of existing structures/foundation ruins will involve field measurements, office scaled plan layout, and plot out of final plan.

Significance after Mitigation

Less than significant
Impact 6.4-4  Redevelopment projects and redevelopment engendered development could result in the substantial alteration, removal, or destruction of historic resources. This would be a significant impact.

The removal or destruction of a Historic Resource listed on the National Register or the California Register, or determined eligible for listing on these registers over the life of the Amendment, would constitute the irreplaceable loss of a recognized significant resource which reflects an aspect of our heritage, and would result in a significant impact on the property.

There are a number of structures over 45 years old within the Amended Project Area that may be too deteriorated to feasibly be rehabilitated. Redevelopment activities may involve the demolition or moving of such structures, or the removal or significant alteration of site and infrastructure features over the life of the Amendment. If a building subject to demolition, movement, or significant alteration was to represent historic resources eligible for listing in the California Register, and changes to character-defining features removed their eligibility, their damage or destruction would represent a significant impact.

Mitigation

This mitigation measure applies to any project that involves the demolition, movement, or significant alteration of a resource listed on or determined to be eligible for listing in the California Register, which causes the resource to be no longer eligible for such listing. If demolition, movement, or significant alteration cannot be avoided, then:

6.4-4  The resource shall be recorded to HABS/HAER standards prior to their removal. Copies of the HABS/HAER documentation shall be filed with the OHP. HABS/HAER recordation typically includes the following:

a. The development of site-specific history and appropriate contextual information regarding the particular resource. In addition to archival research and comparative studies, this task could involve limited oral history collection.

b. Accurate mapping of the resources, scaled to indicate size and proportion of the structures.

c. Photo documentation of the designated resources, both in still and video formats.

d. Recordation by measured architectural drawings, in the case of specifically designed structures of high architectural merit; “as-built” plans of existing structures/foundation ruins will involve field measurements, office scaled plan layout, and plot out of final plan.

Significance after Mitigation

This mitigation measure would reduce the magnitude of potential impacts to historic resources, but not to less-than-significant levels. This impact remains significant and unavoidable.
CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.4-5 Redevelopment projects and redevelopment engendered development could contribute to the cumulative degradation or loss of paleontological, archaeological, or historic resources, including human remains. This would be a significant cumulative impact.

Based upon previous research, the area that comprises the Town and surrounding area has been inhabited by prehistoric peoples for thousands of years and by historic peoples since 1851. Redevelopment activities and projects, in combination with other development in the Town could contribute to the loss of significant archaeological or historic resources. Because all archaeological or historic resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. The loss of any one archaeological site affects all others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part.

The boundaries of an archaeologically or historically important site extend beyond the site boundaries. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on project or parcel boundaries. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. Proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions and cultures by recording data about sites discovered and preserving artifacts found. Federal, state, and local laws are also in place, as discussed above, that protect these resources in most instances. Even so, it is not always feasible to protect these resources, particularly when preservation in place would frustrate implementation of projects, and for this reason, the cumulative effects of the redevelopment activities and other projects in the Town would be significant. Moreover, because redevelopment activities and projects in the Amended Project Area have the potential to adversely affect significant archaeological resources that are unique and non-renewable members of finite classes, the incremental contribution to these cumulative effects would itself be potentially cumulatively considerable. As discussed above, damage or destruction of some archaeological and historic resources in the Amended Project Area may be mitigated on a project-by-project basis. However, any loss of cultural resources associated with redevelopment projects would contribute to a region-wide impact that cannot be remedied. Therefore, this is considered a significant impact.

Mitigation

None available beyond those identified for project-specific mitigation.

Significance after Mitigation

Project-specific mitigation measures would reduce the magnitude of potential cumulative impacts to historic resources, but not to less-than-significant levels. This impact remains significant and unavoidable.
Geology, Soils, and Seismicity

Windsor Redevelopment Project Proposed Fifth Amendment
INTRODUCTION

This Subchapter of the Environmental Impact Report (EIR) describes the geologic environment of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment) based on published and unpublished geologic reports and maps. This Subchapter also assesses potential impacts from seismically-induced fault rupture, strong ground shaking, liquefaction, slope failure, lateral slope deformation, differential settlement, and unstable or expansive soils.

There are no slopes within the Amended Project Area, therefore landslides are not a consideration in this area and will not be discussed in this chapter.

No comments were received on the Notice of Preparation (NOP) regarding geology, soils, or seismicity.

SETTING

GEOLOGY

Geologists refer to the region of northern and central California, which lies between the Pacific Ocean and the Great Valley, as the Coast Range Geomorphic Province (Coast Range). The regional bedrock underlying the Coast Ranges is the Franciscan Complex, a mixture of ancient seafloor sediments and volcanic rocks, which, over millions of years, have undergone alteration by heat and pressure deep within the earth. Overlying the Franciscan bedrock are geologically younger, volcanic and sedimentary rock units. The topography of the Coast Range is characterized by northwest-southeast trending mountain ridges and intervening valleys that were formed over millions of years by movements in the earth’s crust (referred to as tectonics). The Coast Range is known for its high rate of seismic activity, active tectonics, extensive slope failures, and high rates of erosion.

Modern tectonic activity within the Coast Range continues to be associated with activity along the San Andreas system of faults. Regionally, this fault system is the boundary between large sections, or plates, of the earth’s crust known as the North American Plate and Pacific Plate. In the San Francisco Bay Area, this boundary is a complex system of generally parallel, northwest trending faults extending from the main trace of the San Andreas along the coastline eastward to near Fairfield. This system includes several major active faults whose traces extend well into and, in some cases, beyond the North Bay counties.

The general geology of the project area consists of alluvial deposits which are underlain by sedimentary rocks of the Glen Ellen Formation (Windsor, 1993). The Glen Ellen Formation is underlain by what are known as the Sonoma Volcanics.
SOILS

The Existing and Added Project Areas (Amended Project Area) is underlain by Quaternary-aged unconsolidated alluvium consisting of sand, gravel, silt, and clay. Two soils types occur within the area. Soils north of the vicinity of Sotoyome Creek are mapped as Cole Silt Loam with 0 to 2% slope. Cole series soils are characterized as somewhat poorly drained silt loams with dominant clay subsoil. Permeability and run-off are slow, shrink-swell potential is moderate to high, and corrosivity is high. The area around Sotoyome Creek and the remaining portions of the Amended Project Area are mapped as Huichica Loam, a shallow soil of 0 to 9% slope; it is moderately well drained with clay subsoil, slow runoff and low permeability, corrosivity is moderate to high and shrink-swell potential is moderate to high.

TOPOGRAPHY

The Amended Project Area is located within a northwest trending valley to the east of the Russian River Valley. The Town of Windsor (Town) is separated from the Russian River Valley by foothills that reach elevations of just over 200 feet above mean sea level (MSL). To the east of the Amended Project Area, the valley is flanked by the Maacama Mountain Range. The Amended Project Area lies at an elevation of approximately 100 feet above MSL and is relatively flat.

SEISMICITY

The San Francisco Bay Area, including central Sonoma County (County), is recognized as one of the most seismically active regions in the United States. The 1997 Uniform Building Code (UBC) locates the entire Bay Area within Seismic Risk Zone 4; areas within Zone 4 are expected to experience maximum magnitudes and damage in the event of an earthquake. The United States Geological Survey (USGS) Working Group on California Earthquake Probabilities has evaluated the probability of one or more earthquakes of Richter magnitude (M) 6.7 or higher occurring in the San Francisco Bay Area within the next 30 years. The result of the evaluation indicated a 62% likelihood that such an earthquake event will occur in the San Francisco Bay Area between 2003 and 2032 (USGS, 2003).

Several active faults have the potential to cause widespread damage to the Bay Area and are identified in Figure 6.5-1. An active fault is defined by the State of California (State) as a fault that has had surface displacement within approximately the last 11,000 years. A potentially active fault is defined as a fault that has shown evidence of surface displacement during the last 1.6 million years, unless direct geologic evidence demonstrates inactivity for the last 11,000 years or longer. This definition does not, however, mean that faults lacking evidence of surface displacement are necessarily inactive. Sufficiently active is also used to describe a fault if there is some evidence that displacement occurred in the last 11,000 years on one or more of its segments or branches. These faults are considered either active or potentially active. Inactive faults are located throughout the Bay Area. Inactive faults with a long period of inactivity do not provide any guarantee that a considerable seismic event could occur. Occasionally, faults classified as inactive can exhibit secondary movement during a major event on another active fault.
6.5 GEOLOGY, SOILS, AND SEISMICITY

FIGURE 6.5-1
SEISMIC AND GEOLOGIC HAZARDS

Town of Windsor, CA Redevelopment Plan Fifth Amendment

Source: The Ervin Consulting Group, 2009
Data: Windsor General Plan; National Atlas, 2009

FIGURE 6.5-1
SEISMIC AND GEOLOGIC HAZARDS
The closest active fault to the Amended Project Area is the Healdsburg-Rodgers Creek Fault, located approximately 1.5 miles to the northeast. Other potentially damaging seismic sources located in the vicinity include the Maacama fault located about 7 miles to the northeast, and the San Andreas Fault located approximately 20 miles to the southwest. The Healdsburg-Rodgers Creek Fault is considered capable of generating a moment magnitude (MW) 7.0 earthquake. An earthquake of this magnitude on the Healdsburg-Rodgers Creek Fault would generate very strong seismic shaking (Modified Mercalli Intensity Scale (MMI) VIII) within the Amended Project Area. The San Andreas and Maacama faults can also result in strong seismic shaking (MMI VII) in the area.\(^1\)

**GEOLOGIC AND SEISMIC HAZARDS**

**GEOLOGIC HAZARDS**

**Soil Erosion and Soil Loss**

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind, and underground water. Soils containing high amounts of silt or clay can be easily erodible, while sandy soils are less susceptible. Excessive soil erosion can eventually lead to damage of building foundations and roadways. Areas where the soil would be exposed during the construction phase would be susceptible to erosion. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, or asphalt. Site grading and other construction-related earthwork results in the disturbance of soils and the increased potential for soil erosion and soil loss.

**Expansive Soils**

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to building and infrastructure may occur if the potentially expansive soils are not considered in project design and during construction.

**Slope Failure**

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep). The primary factors influencing the stability of a slope are:

- The nature of the underlying soil or bedrock
- The geometry of the slope (height and steepness)
- Rainfall
- The presence of previous landslide deposits

\(^1\) Association of Bay Area Governments, Shaking Maps, retrieved on September 28, 2009 from gis.abag.ca.gov/website/Shaking-Maps.
USGS mapping for the Bay Area region shows that the Amended Project Area is mapped as Category 1, which includes stable areas of 0 to 5% slope that are not underlain by landslide deposits.\(^2\)

### Settlement of Differential Settlement

Settlement and differential settlement\(^3\) could occur if buildings or other improvements were built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time.

### SEISMIC HAZARDS

#### Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. No active faults have been mapped in the Amended Project Area, and no portion of the Amended Project Area is located within an Alquist-Priolo Earthquake Fault Zone. However, it should be noted that surface fault rupture is not necessarily restricted to the area within an Earthquake Fault Zone.

#### Ground Shaking

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth’s surface resulting from an earthquake, which is normally the major cause of damage in seismic events. The MMI is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table 6.5-1). The MMI values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage. The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

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\(^3\) Differential Settlement, as compared to the more general term, Settlement, refers specifically to circumstances where unequal rates of settlement occur across a project, usually in response to different densities or strength of underlying materials. In the case of structures, this can lead to a portion of the structure lowering and/or pulling away from adjacent portions, cracking or shearing of walls and foundations. In some cases, heavily loaded areas settle more than lightly loaded adjacent areas, this can lead to underground utilities shearing or buckling, and adjacent sidewalks or paving heaving, buckling or apparently ‘rising’ in reference to the structure, binding doors and creating steps or tripping hazards.
### TABLE 6.5-1
MODIFIED MERCALLI INTENSITY SCALE

<table>
<thead>
<tr>
<th>Intensity Level</th>
<th>Modified Mercalli Intensity Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Not felt except by a very few under especially favorable circumstances.</td>
</tr>
<tr>
<td>II</td>
<td>Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.</td>
</tr>
<tr>
<td>III</td>
<td>Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.</td>
</tr>
<tr>
<td>IV</td>
<td>During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.</td>
</tr>
<tr>
<td>V</td>
<td>Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.</td>
</tr>
<tr>
<td>VI</td>
<td>Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.</td>
</tr>
<tr>
<td>VII</td>
<td>Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.</td>
</tr>
<tr>
<td>VIII</td>
<td>Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.</td>
</tr>
<tr>
<td>X</td>
<td>Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.</td>
</tr>
<tr>
<td>XII</td>
<td>Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.</td>
</tr>
</tbody>
</table>


#### Liquefaction and Lateral Spreading

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. This can result in foundations cracking or sinking, walls racking (shifting out of square), windows breaking, utility connections being sheared or dislodged, and either incremental or catastrophic structural failure. Since saturated soils are a...
necessary condition for liquefaction, soil layers in areas where the groundwater table is near
the surface have higher liquefaction potential than those in which the water table is located
at greater depths. Shaking hazards to structures is related to the thickness of alluvium.
Liquefaction potential varies according to the distribution of clay-free granular materials and
ground water shallower than 50 feet. County studies indicate that groundwater is generally
shallower than 20 feet and site-specific geologic studies are recommended in these areas to
evaluate the liquefaction hazard. As identified in the Town of Windsor General Plan
(General Plan) Figure 7-1, most of the Amended Project Area to the west of U.S. 101 and
north of Windsor River Road is outside the identified liquefaction area.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or
other “free” face, such as an excavation boundary. Lateral spreading can result from either
the slump of low-cohesion unconsolidated material or more commonly by liquefaction of
either the soil layer or a subsurface layer underlying soil material on a slope. The lateral
spreading hazard will tend to mirror the liquefaction hazard for a site.

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes.
During an earthquake, settlement can occur as a result of the relatively rapid
rearrangement, compaction, and settling of subsurface materials (particularly loose, non-
compacted, and variable sandy sediments). Settlement can occur both uniformly and
differentially (i.e., where adjoining areas settle at different rates). Areas underlain by
artificial fills, unconsolidated alluvial sediments, slope wash, and areas with improperly
engineered construction fills could be susceptible to this type of settlement. Earthquake-
induced settlement could potentially occur in the Amended Project Area.

REGULATORY FRAMEWORK

STATE

California Building Code

The California Building Code (CBC) is another name for the body of regulations found in the
California Code of Regulations (CCR), Title 24, Part 2 (2007), which is a portion of the CBC.
Title 24 is assigned to the California Building Standards Commission, which, by law, is
responsible for coordinating all building standards. Under State law, all building standards
must be centralized in Title 24 or they are not enforceable.

Published by the International Conference of Building Officials, the UBC is a widely adopted
model building code in the United States. The CBC incorporates by reference the UBC with
the necessary California amendments. About one-third of the text within the California
Building Code has been tailored for California earthquake conditions.

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4 M.E. Huffman and C.F. Armstrong, Geology for Planning in Sonoma County, California Geological Survey,
Special Report 120, 1980.
5 Rauch, Alan F., 1997, EPOSS: An Empirical Method for Predicting Surface Displacements due to
Liquefaction-Induced Lateral Spreading in Earthquakes, Ph. D. Dissertation, Virginia Tech, Blacksburg, VA.
The Town is located within Zone 4, one of the four seismic zones designated in the United States. Zone 4 is expected to experience the greatest effects from earthquake ground shaking, and therefore has the most stringent requirements for seismic design. The national model code standards adopted into Title 24 apply to all occupancies in California, except for modifications adopted by state agencies and local governing bodies.

**LOCAL**

**Town of Windsor General Plan**

The following General Plan Public Health and Safety Chapter’s policies and implementation programs are applicable to the Amendment.

**Policies**

A.2 Minimize the risks to lives and properties due to geologic and seismic hazards.

A.2.1 The Town shall consider the potential danger to health, safety, and welfare of Windsor residents and businesses in its review of development applications and seek to have hazardous conditions mitigated to an acceptable level. The Town should use [General Plan] Table 7-1 as a guideline for determining acceptable levels of exposure to risk.

A.2.2 The Town shall not locate public improvements and utilities in areas with identified geologic or seismic hazards and the extreme and heavy ground shaking intensity areas… to avoid any extraordinary maintenance and operating expenses. When the location of public improvements and utilities in such areas cannot be avoided, effective measures should be implemented to minimize potential damage and public inconvenience.

A.2.4 The Town shall require that facilities necessary for emergency services be capable of withstanding a maximum credible earthquake from any of the three active faults in the region and remaining operational to provide emergency response.

A.2.5 For parcels which partially lie within a designated seismic or geologic hazard area (see [General Plan] Figure 7-1 and the extreme and heavy ground shaking intensity areas of [General Plan] Figure 7-2), a geotechnical hazards report, prepared by a certified engineering geologist, shall be required to identify the most appropriate building areas and corrective measures to minimize potential hazards.

**Implementation Measures**

A.2 Geotechnical Hazards Reports. The Town shall require geologic investigations for any project proposed within designated seismic and geologic hazard areas, shown in [General Plan] Figure 7-1 and the extreme and heavy ground shaking intensity areas of [General Plan] Figure 7-2. Recommendations from these investigations, or

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6 According to Figures 7-1 and 7-2 of the Public Health and Safety Chapter of the Windsor General Plan, the Amended Project Area is not located within an area of extreme ground shaking intensity but some portions east of the rail right-of-way are located in a heavy intensity area, with the remainder in the moderate intensity areas (Windsor, 1996).
equivalent measures deemed acceptable by the Town, shall be incorporated as conditions of any project approval. (Building, Engineering, Public Works)

A.3 Building Requirements. The Town shall continue to comply with the prevailing version of the Uniform Building Code and shall consider adopting more stringent standards to address liquefaction and the strong ground shaking projected for a major earthquake along the Healdsburg-Rodgers Creek fault. (Engineering, Building)

A.4 Building Inventory. The Town shall inventory buildings with unreinforced masonry and should attempt to inform property owners of the potential seismic-related risks. (Building)

A.5 Public Information. The Town shall provide public information on methods to reinforce existing hazardous structures, and shall promote awareness and preparedness in the event of a seismic hazard. (Building)

A.6 Hazards Combining District. The Town shall consider the desirability of designating and adopting a hazards combining district as part of its zoning ordinance. This district would prescribe additional development standards and regulations beyond those normally associated with zoning ordinances, as well as the process for development review. In essence, these additional standards are overlaid on top of the basic use and intensity provisions covered by zoning. Combining districts can be created specifically to deal with hillside, seismic, and/or landslide areas. (Planning, Engineering, Building)

ENVIRONMENTAL IMPACTS

METHODODOLOGY

The section begins with criteria of significance, which establish the thresholds for determining whether an impact is significant. Significant impacts for this programmatic-level analysis were determined based on the same set of criteria of significance, described below. The latter part of this section presents the potential geotechnical impacts associated with implementation of the proposed Amendment. Mitigation measures are recommended, as appropriate, for significant impacts to eliminate or reduce them to less-than-significant level. This section also identifies impacts that are considered to be less than significant.

THRESHOLDS OF SIGNIFICANCE

The proposed Amendment would result in a significant geologic, soils or seismic impact if it would have any of the following effects:

- Expose people or structures to potential substantial adverse seismic effects, including the risk of loss, injury, or death involving:
  - 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 (refer to Division of Mines and Geology Special Publication 42)
- Strong seismic ground shaking
- Seismic-related ground failure, including liquefaction

- Allow new development on strata or soil that is unstable, or that would become unstable, and potentially result in liquefaction
- Allow new development on strata or soil that is unstable, or that would become unstable, and potentially result in on- or off-site landslide, lateral spreading, subsidence, or collapse
- Allow new development on expansive soil creating substantial risks to life or property

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

**Impact 6.5-1** Occupants of redevelopment-engendered development in the Amended Project Area would be subject to seismic hazards including ground shaking, liquefaction, and seismic-related subsidence and/or collapse. **This would be a significant impact.**

All structures in the greater Bay Area could be affected by ground shaking in the event of an earthquake. The amount of ground shaking depends on the magnitude of the earthquake, the distance from the epicenter, and the type of earth materials between the receptor and the epicenter. Although no portions of the Amended Project Area are located within the Alquist-Priolo zone, very-strong shaking is expected in portions of the Amended Project Area during earthquakes on the Healdsburg-Rodgers Creek fault and other regional active faults, and strong ground shaking is expected throughout the remaining area. This level of seismic shaking could cause extensive non-structural damage to buildings on these parcels.

The potential for liquefaction, lateral spreading, and seismic-related subsidence and/or collapse have not been evaluated for Amended Project Area parcels in site-specific geotechnical investigations, which should be done at the time a project is considered for a site. The Association of Bay Area Governments (ABAG) mapping indicates a range of liquefaction hazards from moderate to very-low across the Amended Project Area in the event of an MW 7.0 earthquake on the Rodgers Creek Fault. In addition, the Windsor General Plan Health and Safety Chapter recognizes the liquefaction potential in many parts of the Amended Project Area.

The proposed Amendment would remove barriers to development as specified in the General Plan land use designations. No new development or population increases beyond those planned for by the Town would occur as a result of the Amendment. Any new development within the Amended Project Area could expose people to the risk of loss, injury, or death if construction practices do not meet stringent requirements suitable for maintaining safety during strong and very-strong ground shaking. This would result in a significant impact. Although seismic hazards cannot be completely eliminated, ensuring site-specific geotechnical study and advanced building practices are implemented for all redevelopment projects can sufficiently reduce the risk of loss, injury, or death to less-than-significant levels.

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7 Nonstructural building elements include, but are not limited to: glass, fixtures, furnishings, and other contents, equipment, and utilities (gas, high-temperature water, steam, fire-protection water, etc.).
Mitigation
The following mitigation measure applies to all redevelopment projects, including private projects subject to a disposition and development agreement (DDA) or an owner participation agreement (OPA) with the Redevelopment Agency of the Town of Windsor (Agency):

6.5-1 A design-level geotechnical study shall be prepared by a licensed professional and submitted to the Town of Windsor Building Division for review and confirmation that the proposed development fully complies with the CBC. The report shall determine the parcels’ surface geotechnical conditions, and address potential seismic hazards, such as landslide, liquefaction, lateral spreading, subsidence, or collapse. The report shall identify building techniques appropriate to minimize seismic damage. In addition, the following requirement for the geotechnical and soils report shall be met:

a) Analysis presented in the geotechnical study shall conform to the California Division of Mines and Geology recommendations presented in the Guidelines for Evaluating Seismic Hazards in California.\(^8\)

b) All design criteria and specifications set forth in the geotechnical and soils report shall be implemented as a condition of project approval.

Significance after Mitigation
Less than significant

Impact 6.5-2 Damage to structures or property in the Amended Project Area related to expansive soils, corrosive soils, and/or settlements of non-engineered fill soils could occur. This would be a potentially significant impact.

The proposed Amendment would remove barriers to development within the Amended Project Area, and encourage new construction and infill within the area. NRCS soil surveys mapped the Amended Project Area as Cole Silt Loam (0 to 2% slopes) and Huichica Loam, a shallow soil of 0 to 9% slope. Cole series soils are characterized as somewhat poorly drained silt loams with a dominant clay subsoil. Permeability and run-off are slow, shrink-swell potential is moderate to high, and corrosivity is high. Huichica Loam soil is moderately well drained with a clay subsoil, slow runoff, low permeability, corrosivity is moderate to high, and shrink-swell potential is moderate to high.

Redevelopment activities would encourage the redevelopment and reuse of properties within the Amended Project Area. Casual non-engineered near-surface fills may be present on a project site from previous uses. Structural damage, warping and cracking of roads, driveways, parking areas and sidewalks, and rupture of utility lines may occur if the potential expansive soils and the nature of the imported fill are not considered during design and construction of improvements. Redevelopment-engendered construction on expansive soils, corrosive soils, and/or settlements of non-engineered fill soils without proper analysis and design could result in a potentially significant impact.

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\(^8\) California Division of Mines and Geology, 1997, Guidelines for Evaluating Seismic Hazards in California, CDMG Special Publication 117, page 74.
Mitigation

The following mitigation measures apply to all redevelopment projects, including private projects subject to a DDA or an OPA with the Agency:

6.5-2a The design-level geotechnical study required by Mitigation Measure 6.5-1 shall include measures to ensure potential damage related to unstable soils, such as expansive soils and non-uniformly compacted fill, is minimized. In locations underlain by expansive soils and/or non-engineered fill, the designers of proposed building foundations and improvements (including sidewalks, roads, driveways, parking areas, and utilities) shall consider these conditions. Design options may range from removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill to design and construction of improvements to withstand the forces exerted during the expected shrink-swell cycles and settlements.

6.5-2b The design-level geotechnical study shall include an evaluation of the potential for corrosive soils. If the results indicate corrosive soil conditions, appropriate measures to mitigate these conditions shall be incorporated into the design of project improvements that may come into contact with site soils. Wherever corrosive soils are found in sufficient concentrations, recommendations shall be made to protect iron, steel, metal, and concrete from long-term deterioration caused by contact with corrosive on-site soils. In general, these recommendations are expected to include, but are not limited to, the following provisions:

a) Protect buried iron, steel, cast iron, ductile iron, galvanized steel, and dielectric coated steel or iron (including all buried metallic pressure piping) against corrosion from soil
b) Protect buried metal and cement structures in contact with earth surfaces from chloride ion concentrations
c) Use sulfate-resistant concrete mix for all concrete in contact with the ground
d) Consult a corrosion expert during the project’s detailed design phase to design the most effective corrosion protection

All design criteria and specifications set forth in the geotechnical report shall be implemented to reduce impacts associated with problematic soils to a less-than-significant level.

Significance after Mitigation

Less than significant
CUMULATIVE IMPACTS

**Impact 6.5-3** The proposed Amendment, together with other developments in the immediate vicinity, would contribute to potential cumulative geologic and seismic hazards including increased soil erosion, slope failure, ground shaking, soil settlement, and liquefaction. This would be a less-than-significant cumulative impact.

The entire San Francisco Bay Area is located within a seismically active region with a wide range of geologic and soil conditions with varying degrees of hazards. These conditions can vary widely within a short distance, making the cumulative context for potential impacts more localized or even site-specific. The proposed Amendment would remove barriers to General Plan build-out, but would not approve new land uses or increases in population that were not considered in the General Plan. With the requirement of site-specific geologic analysis for all redevelopment projects, the proposed Amendment would not result in a significant and unavoidable impact related to geology, soils, and seismicity. With the combined effects of the implementation of county and state level regulations (i.e. building codes), as well as implementation of current design standards, redevelopment within the Amended Project Area would result in a less-than-considerable increase in exposure of people and structures to seismic and geologic hazards. Therefore, the Amendment would result in less-than-significant cumulative geology, soils, and seismic impacts.

**Mitigation**

None required
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HAZARDS AND HAZARDOUS MATERIALS

Windsor Redevelopment Project Proposed Fifth Amendment
6.6 HAZARDS AND HAZARDOUS MATERIALS

This Subchapter of the Environmental Impact Report (EIR) addresses the hazards to the public resulting from the use or disposal of hazardous materials in the Existing Project Area and Added Area (Amended Project Area) for the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment), as well as anticipated effects of known or suspected hazardous substance contamination.

There was one comment on the Notice of Preparation (NOP) from the State Department of Toxic Substance Control (DTSC). The comment was a general response requesting procedures for future site-specific reviews.

ENVIRONMENTAL SETTING

TERMINOLOGY OF HAZARDS AND HAZARDOUS MATERIALS

Under Title 26 of the California Code of Regulations (CCR), a hazardous material is defined as a substance or combination of substances that may cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness, or may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Chapter 11, Article 2, Section 66261.10).

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be properly disposed of. The California Health and Safety Code, sections 25117 and 25122, define a hazardous waste as any solid, liquid, or contained gaseous material for disposal or recycle that poses significant potential harm to human health or environmental quality. According to CCR Title 26, hazardous materials and hazardous wastes are classified according to four properties: toxic, ignitable, corrosive, and reactive (CCR, Title 26, Section 22-66680).

- Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. Toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, and other adverse health effects, depending on the level of exposure. Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline).
- Ignitable substances, such as gasoline, hexane, and natural gas, are hazardous because of their flammable properties.
- Corrosive substances, such as sulfuric acid (battery acid) and lye, can damage other materials or cause severe burns upon contact.
- Reactive substances, such as explosives, pressurized canisters, and pure sodium metal (which reacts violently when exposed to water), may cause explosions or generate gases or fumes.

Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific CCR Title 26 criteria. Remediation (cleanup) of hazardous wastes found at a project site is generally required if those materials are excavated. Cleanup requirements are determined on a case-by-case basis by the agency with lead jurisdiction over the project.
EXISTING CONDITIONS

The Town of Windsor (Town) is a small, primarily residential community with an aging housing stock and roughly four miles of freeway exposure along US Highway 101 (US 101). The main north-south rail line of the Northwestern Pacific Railroad (NWPRR) runs parallel to US 101. The majority of non-residential sites in the Amended Project Area fall between US 101 and the Northwestern Pacific Railroad (NWPRR) line, which run northwest to southeast through the Town.

An Environmental FirstSearch™ Report was prepared for the Amended Project Area by EEI Geotechnical and Environmental Solutions on August 10, 2009, to identify known and potential sources of contamination (Appendix C). A visual survey was also conducted of the Amended Project Area to identify any other potential sites (Appendix C). The results of this report and the survey are summarized below.

The search parameters for the Environmental First Search™ report were set to comply with the latest ASTM standard, E1527-05, which is the standard used in Phase I ESAs. This default is used because it uses a clear set of guidelines, based on EPA Standards and Practices for All Appropriate Inquiries (AAI); Final Rule (40 CFR Part 312). EEI utilized Environmental First Search™ to review hazardous waste generating establishments in the vicinity of the Amended Project Area, and for sites with known environmental concerns. These facilities were identified by county, state, or federal agencies as either having a known spill/leak, or as having permits to either generate, store, or dispose of hazardous materials, hazardous waste, or petroleum products.

The presence of an operating permit is not necessarily considered a concern, unless a spill/leak has also been reported at the site as well. Therefore, many of these listings are merely sites with the potential for future concerns due to the presence of known historic presence of hazardous materials, hazardous waste, or petroleum products. Sites with known spills/leaks are also identified, regardless of site status (i.e., closed or open). Therefore, many of the listings may reflect known release sites where cleanup action has occurred and a no further action status has been granted. However, a No Further Action (NFA) status is not a guarantee that the site is either "clean" or not currently a threat to either human health or the environment. It merely reflects that at the time the NFA was granted, the regulatory agency overseeing the site felt that a sufficient level of mitigation had occurred or that, based on the standards at the time, the best available technology had reached a point of "diminishing returns" and no further reduction in contamination was either practical or economically feasible. It is important that case files for former release sites be reviewed in enough detail to verify that the current condition of the site does not pose a potential concern.

There are 142 commercial parcels, 22 utility parcels (right-of-way, substations, other utilities), and 12 industrial parcels in the Amended Project Area. A total of 72 sites were reported on the various state and federal environmental databases within the Amended Project Area. These include:

- 2 Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites
- 1 CERCLIS No Further Remedial Action Planned (NFRAP) site
- 2 State Spill sites
- 8 small emergency response (spill sites)
- 16 leaking underground storage tank (LUST) sites
- 2 State Cleanup sites
- 5 Resource Conservation and Recovery Act (RCRA) generator sites
- 14 permitted underground storage tank (UST) facilities

The majority of these listed sites are located along the principal thoroughfares in the Amended Project Area, Old Redwood Highway, Redwood Highway (US 101), and Windsor Road. No National Priority List (NPL) sites or Solid Waste Landfill sites were identified within the Amended Project Area. Figure 6.4-1 shows the level of hazards risk throughout the Amended Project Area.

**Added Area**

The Added Area contains some of the older residential structures in the Town outside the historic Windsor Downtown, and asbestos-containing material (ACM) and lead based paint would be anticipated in these dwellings. According to data from the Sonoma County (County) Assessor, 71% of the residential properties within the Added Area were developed prior to 1979\(^1\), with half developed over 50 years ago (prior to 1959). These older structures are more susceptible to deterioration due to aging, weathering, and lack of current building standards and codes, which increases the risk of the release of asbestos or lead. Rehabilitation or demolition can also release lead based paint and/or ACM into the environment.

Of the listed sites on the various state and federal environmental databases located within the Added Area, those considered as having relatively moderate to severe contamination issues include:

- A. Action Rents – 10510 Old Redwood Hwy (Open LUST site)
- B. Redwood Truck and Auto Dismantling – 10475 Old Redwood Hwy (State/Tribal Sites, UST site, State Permits, and State Other)
- C. West Coast Metals – 10439 Old Redwood Highway (CERCLIS NFRAP site, State Spills site, and Open-Inactive LUST site)
- D. Phils Former – 10221 Old Redwood Hwy (Open LUST site)

The remaining listed sites in the Added Area have either been closed, or have not demonstrated a significant impact to soil and/or groundwater.

**Existing Project Area**

Of the listed sites located within the Existing Project Area, those considered as having relatively moderate to severe contamination issues include:

- E. Windsor Fuel (aka Pacific Gas and Electric Company [PG&E]) – 9600 Old Redwood Highway (CERCLIS Low Priority site, State/Tribal site, State Spill site, Open LUST site, UST site, State Other site, and State Permit site)
- F. Windsor Chevron – 9120 Old Redwood Hwy (Open LUST site)
- G. Shell Service Station – 9033 Old Redwood Hwy (LUST)
- H. Banks Property – 340 Windsor River Road (Open LUST site)
- I. Circle K Store – 290 Windsor River Rd (Open LUST site)

\(^1\) The widespread use of ACM and lead based paints in residential construction was effectively banned in 1978 (asbestos: 40 CFR 60, Subpart M; lead: 16 CFR 1303).
6.6 HAZARDS AND HAZARDOUS MATERIALS

FIGURE 6.6-1
HAZARDS CONTAMINATION


REDEVELOPMENT AGENCY OF THE TOWN OF WINDSOR
WINDSOR REDEVELOPMENT PROJECT
PROPOSED FIFTH AMENDMENT DRAFT EIR
J. Empire Casting (aka Windsor Mill) – 8777 Bell Street (CERCLIS NFRAP, ERNS\(^2\), and State Spills)

K. Palms Cleaners – 8499 Old Redwood Hwy (RCRA generator)

The remaining listed sites in the Existing Project Area have either been closed, or have not demonstrated a significant impact to soil and/or groundwater.

**Potential Receptors**

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent primarily on an individual's potential pathway for exposure. Hazardous materials exposure could occur through exposure to groundwater and/or soil contamination during construction. With respect to this possible form of hazardous materials exposure, construction workers have the highest potential for exposure to groundwater and/or soil contamination. Other potential receptors in the Amended Project Area include home health care facilities and residential areas.

**Hazardous Materials Transportation through the Amended Project Area**

**Rail**

The NWPRR tracks run along the western boundary and through the northern portion of the Existing Project Area. The tracks have not been used for many years, but the North Coast Railway Association (NCRA) is preparing to reinitiate freight traffic. The NWPRR estimates operations of three (3) roundtrip trains per week in 2010, increasing to three (3) roundtrips per day in 2011 and beyond.\(^3\)

Rail crossing arms have recently been reinstalled for all at-grade crossings in the Town (Chamberlin, 2009), as part of recent repairs to 62 miles of the railway between Napa County and Windsor.\(^4\) The NWPRR railroad tracks traveling through the County, including Windsor, are Class 3 tracks; the legal maximum allowable speed for future freight trains through the Amended Project Area is 40 miles per hour (mph).\(^5\)

The Sonoma-Marin Area Rail Transit (SMART) project also proposes to use the NWPRR line for a 70-mile passenger railroad and parallel bicycle-pedestrian path along the publicly owned right-of-way (ROW) through the two counties. The rail line runs from Cloverdale, at the north end of Sonoma County, to Larkspur, where the Golden Gate Ferry connects Marin County with San Francisco. Along the way SMART will have stations at the major population and job centers of the North Bay: San Rafael, Novato, Petaluma, Cotati, Rohnert Park, Santa Rosa, Windsor, and Healdsburg. The SMART project is currently moving from the conceptual stage toward the engineering and building stage. Construction activity is scheduled to begin in 2011, with train service scheduled to begin in 2014.

Rail companies are public carriers (regulated by the Public Utilities Commission), and the federal government requires railroads to transport hazardous substances, whether the rail company wants to or not. Any shipper that chooses to use rail to transport hazardous materials may do so, provided the shipper and rail car(s) transporting the materials meet all federal rail safety transportation requirements for hazardous materials. The number of cars

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\(^2\) Emergency Response Notification System


\(^4\) Ibid.

carrying hazardous materials through the Town at any one time therefore varies from train-to-train, as do the types and amounts of hazardous materials transported between origins and destinations. While the shippers and the railroads maintain comprehensive records of where a rail car (including pressurized tanks carrying hazardous materials) is at any given time, this information is not published or readily available to the general public. In the event of an emergency involving an accidental or threatened release of hazardous substances, however, this information is immediately available to response personnel via a coordinated national, state, and local emergency response system.

Unlike large switching yards where freight trains may idle for long periods of time or remain overnight, freight trains do not stop in the Town for any planned purpose. However, because passenger trains have priority over freight, if there is a delay in the system there is the potential that a freight train would be stopped adjacent to or in the Amended Project Area for a short amount of time. Such occurrences would be random and unscheduled. Further, the number of cars carrying hazardous materials would be similarly unpredictable.

Roadways

Local truck traffic transporting products containing hazardous substances may legally use any through roadways in the Amended Project Area, including Old Redwood Highway, Redwood Highway (US 101), and East Shiloh Road. US 101 is a major highway on which hazardous substances are routinely transported.

REGULATORY SETTING

FEDERAL

Many agencies regulate hazardous substances. These include federal agencies such as the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Nuclear Regulatory Commission (NRC), the US Department of Transportation (DOT), and the National Institutes of Health (NIH). The following federal laws and guidelines govern hazardous substances:

- Federal Water Pollution Control Act
- Clean Air Act (CAA)
- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response, Compensation, and Liability Act Guidelines for Carcinogens and Biohazards (CERCLA)
- Superfund Amendments and Reauthorization Act (SARA), Title III
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act
- Toxic Substances Control Act (TCSA)

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the EPA, under the authority of the RCRA. The EPA regulates hazardous substance sites under CERCLA. Applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations (CFR).

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Hazardous Substances Handling Requirements

The RCRA established an all-encompassing federal regulatory program for hazardous substances that is administered by the EPA. Under the RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle-to-grave” system of regulating hazardous substances. The HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous substances.

Under the RCRA, individual states may implement their own hazardous substance management programs as long as those programs are consistent with, and at least as strict as, the RCRA. The EPA must approve state programs intended to implement the RCRA requirements.

Hazardous Substances Worker Safety Requirements

OSHA is the agency responsible for ensuring worker safety. OSHA sets federal standards for implementation of training in the workplace, exposure limits, and safety procedures in the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

Transport of Hazardous Substances and Hazardous Wastes

The DOT has developed regulations in CFR Titles 10 and 49 pertaining to the transport of hazardous substances and hazardous wastes by all modes of transportation. The US Postal Service (USPS) has developed additional regulations for the transport of hazardous substances by mail. DOT regulations specify packaging requirements for different types of materials. The EPA has also promulgated regulations for the transport of hazardous wastes. These more stringent requirements include tracking shipments with manifests to ensure that wastes are delivered to their intended destinations.

In a typical year, 1.7 to 1.8 million rail freight carloads of hazardous substances are transported by rail throughout the United States. In June 2007, in his address to the 2007 Chemical Sector Security Summit, then-Homeland Security Secretary Michael Chertoff noted that the DOT’s hazardous materials transportation safety program “provides for a high degree of safety with respect to incidents involving unintentional releases of hazardous materials occurring during transportation.” He went on to note,

…intentional misuse of hazardous materials was rarely considered when the regulations were developed. Since 9/11, [the government agencies] have come to realize that hazardous materials safety and securities are inseparable. Many, if not most, of the requirements designed to enhance hazardous materials transportation safety, such as strong containers and clear hazard communication, enhance the security of hazardous materials shipments as well. Congress recognized this synergy and legislated its intent that hazmat safety [was] to include hazmat security when it enacted the Homeland Security Act of 2002 authorizing the Secretary of Transportation to prescribe regulations for the safe transportation, including security, of hazardous material in intrastate, interstate, and foreign commerce.

Secretary Chertoff further acknowledged the federal government’s heightened concern about the safety, security, and vulnerability of rail transport of hazardous substances –

6.6 HAZARDS AND HAZARDOUS MATERIALS

particularly toxic inhalation hazard materials, such as chlorine gas – in highly urbanized areas. Secretary Chertoff noted his agency had completed a comprehensive risk evaluation process and determined “the greatest vulnerability is in those areas where [there is a] chemical sitting still in a rail yard or in some particular location of track, or in an area where there is a handoff between one entity controlling the chemical car and another one...”

CFR 49, Parts 106 through 189, regulate the transport of such materials as well as all other hazardous substances on rail lines. Additionally, the rail industry, through the Association of American Railroads, has developed a detailed protocol on recommended railroad operating practices for the transportation of hazardous materials. The Association of American Railroads issued the most recent version of this document, known as Circular OT-55-J, on March 17, 2009. The Circular details railroad operating practices for designating trains as "key trains" for certain types and amounts of hazardous substances, designating operating speed and equipment restrictions for key trains, designating "key routes" for key trains, and setting standards for track inspection and wayside defect detectors, assisting communities with emergency response training and information, and shipper notification procedures, among others. These recommended practices were originally implemented by all of the Class 1 rail carriers operating in the United States; the most recent version of the Circular also includes short-line railroads as signatories. Overall, while there have been a few serious accidents involving a hazardous materials release in the last few years,8 the rail safety record has been extremely good. In 2008, 99.99% of rail hazardous substances shipments reached their final destination without a release caused by an accident. Furthermore, railroads have reduced hazmat accident rates by 88% from 1980 through 2008.9

Additionally, the Freight Rail Security Program is a public-private partnership dedicated to assessing policies and technologies for enhancing security throughout the freight rail industry. One product of this partnership is the development of the Rail Corridor Risk Management Tool (RCRMT). The RCRMT will leverage existing technologies and accepted risk management practices where feasible, and incorporate new technologies and elements as appropriate. A second project of the Freight Rail Security Program is the Rail Corridor Hazmat Response and Recovery Tool (RCHRRT), which will integrate geographical information and risk modeling. The RCHRRT is being developed through a grant to the Railroad Research Foundation and will include participation from the rail industry. When fully developed, these tools will provide a formal methodology to assist the rail carriers in complying with the enhanced safety and security planning requirements.

Asbestos-Containing Materials and Lead-Based Paint

Disturbance of materials that contain asbestos or lead is controlled by many different agencies and regulations. Most asbestos and lead laws originated from two main federal regulatory agencies, the OSHA and the EPA. In addition to OSHA and EPA, lead regulations established by the US Department of Housing and Urban Development (HUD) have paved the way for other federal, state, and local lead laws. OSHA's primary focus is worker safety. EPA's primary focus is ecological and environmental conditions. HUD's primary focus is federally-owned or funded housing. In many instances, regulations set forth by these three main agencies and by the laws enacted by other federal, state, and local...
agencies overlap. It is prudent to establish applicable regulations before taking any action involving the disturbance of asbestos and lead containing materials or wastes.

Several regulations and guidelines pertain to the abatement of and protection from exposure to ACM and lead-based paint. These include Construction Safety Orders 1529 and 1532.1 from CCR Title 8, Part 61, CFR Subpart M, and lead-based paint exposure guidelines provided by HUD. These rules and regulations prohibit emissions of asbestos from asbestos-related demolition or construction activities, require medical examinations and monitoring of employees engaged in activities that could disturb asbestos, specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers, and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos.

**STATE**

The California Environmental Protection Agency (CalEPA) and the State of California Office of Emergency Services (OES) establish rules governing the use of hazardous substances in the state. The State Water Resources Control Board (SWRCB) has primary responsibility to protect water quality and supply.

Applicable State laws include the following:

- Porter Cologne Water Quality Act
- Public safety and fire regulations and building codes
- Hazardous Substance Control Law (HWCL)
- Hazardous Substances Information and Training Act
- Hazardous Substances Release Response Plans and Inventory Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act

Within CalEPA, the DTSC has primary regulatory responsibility for the generation, transport, and disposal of hazardous substances under the authority of the HWCL. The DTSC can delegate this enforcement role to local jurisdictions that enter into agreements with the state agency. State regulations applicable to hazardous substances are indexed in CCR Title 26. CCR Title 22 and 26 pertain to hazardous substances and the management of hazardous substances. CCR Title 8 contains Construction Safety Orders pertaining to asbestos and lead.

**Hazardous Substances Handling Requirements**

In California, the Hazardous Waste Management Program (HWMP) regulates hazardous waste through its permitting, enforcement, and Unified Program activities. The HWMP is authorized by the EPA to implement the RCRA program in California and develops regulations, policies, guidance, technical assistance, and training to ensure the safe storage, treatment, transportation, and disposal of hazardous wastes.

Regulations implementing the HWCL list 791 hazardous chemicals and 20 or 30 more common substances that may be hazardous; establish criteria for identifying, packaging and labeling hazardous substances; prescribe management of hazardous substances; establish permit requirements for hazardous substances treatment, storage, disposal, and transportation; and identify hazardous substances that cannot be deposited in landfills.
Under both the RCRA and the HWCL, the generator of a hazardous substance must complete a manifest that accompanies the waste from the point of generation to the ultimate treatment, storage, or disposal location. The manifest describes the waste, its intended destination, and other regulatory information about the waste. Copies must be filed with the DTSC. Generators must also match copies of waste manifests with receipts from the treatment, storage, or disposal facility to which it sends waste.

**Hazardous Substances Worker Safety Requirements**

California Occupational Health and Safety Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within California. Cal/OSHA standards are more stringent than their federal regulations.

Cal/OSHA regulations concerning the use of hazardous substances include requirements for safety training, availability of safety equipment, hazardous substances exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous substances, describing the hazards of chemicals, and documenting employee-training programs.

Both federal and state laws include special provisions for hazards communication to employees who work with and/or encounter hazardous materials and wastes. The training must include safe methods for handling hazardous substances, an explanation of Material Safety Data Sheets, use of emergency response equipment, implementation of an emergency response plan, and use of personal protective equipment.

**Asbestos-Containing Materials and Lead-Based Paint**

In California, ACM and lead-based paint abatement must be performed and monitored by contractors with appropriate certification from the California Department of Health Services.

**LOCAL**

**Certified Unified Program Agency**

The Certified Unified Program Agency (CUPA) was developed to consolidate the administration of six specific state hazardous materials programs at the local level under one agency. The County of Sonoma Department of Emergency Services Hazardous Materials Division (Sonoma HMD) has the responsibility for the County’s CUPA programs. These programs include the Hazardous Materials Business Plan (HMBP), the Hazardous Waste Generator, the UST, the Aboveground Petroleum Storage Tanks, the Accidental Release Prevention, and the portions of the California Fire Code which address hazardous materials. Inspections of businesses in the County, which are included in any of these programs, are conducted on a routine basis. Funding for this Division is provided through fees charged to the businesses which are regulated by them. There are approximately 1,300 businesses covered by one or more of the CUPA programs. Information regarding hazardous materials in the Town can be obtained from this Division.

**Sonoma County Environmental Health Division Local Oversight Program**

The Sonoma County Environmental Health Division (EHD) Local Oversight Program (LOP) oversees the investigation and cleanup of fuel releases from USTs in all areas of the county with the exception of the cities of Santa Rosa and Healdsburg. Sites are entered into the LOP when a release from a UST is reported. Once entered into the LOP, the site must be
investigated and cleaned up in accordance with the California Underground Storage Tank Regulations, Sonoma County Program Guidelines for Site Investigations, and Regional Water Quality Control Board (RWQCB) water quality objectives. The LOP is authorized to regulate UST releases by the SWRCB.

EHD is also responsible for the County’s Environmental Drilling Program. Environmental drilling is required for investigation and cleanup of contaminated sites. Various agencies may have jurisdiction over these investigations and cleanups. Environmental drilling is also conducted for Real Estate Phase 2 Environmental Site Assessments. In accordance with the Sonoma County Well Ordinance, Environmental Drilling Permits for these activities are issued by EHD. Since EHD also administers the Leaking Underground Storage Tank Local Oversight Program (LOP) for petroleum fuel releases. When environmental drilling is proposed on these sites, EHD has the dual role of overseeing the investigation and cleanup, and issuing Environmental Drilling Permits. EHD also oversees the Counties Medical Waste, Solid Waste, and Storm Water Pollution Prevention Programs.

**Windsor Fire Protection District**

The Windsor Fire Protection District (Fire District) provides emergency and nonemergency services to the Town. Services provided by the Fire District include:

- Fire suppression
- Rescue
- Property conservation
- Emergency medical services
- Disaster planning and response
- Fire prevention services, including fire prevention inspections and community education

Goals and policies also have been developed by the Town concerning the management of hazardous substances to protect human health and the environment.

**Town of Windsor General Plan**

The following are relevant General Plan objectives and policies that apply to the Amended Project Area:

**Goals and Objectives**

Public Health and Safety: Minimize potential health effects from the use, storage, and disposal of hazardous materials and waste.

**6-C. Water Resources and Quality**

C.1.5 The Town shall control and monitor the use and disposal of hazardous materials, the extraction of resources, and the disposal of wastes into injection wells to protect water quality.

**6-E. Hazardous Materials and Waste**

**Policies**

E.1 Minimize potential health effects from the use, storage, and disposal of hazardous materials and waste.
Implementation Programs

E.1 Hazardous Waste Management Plan. Windsor shall implement those aspects of the Sonoma County Hazardous Waste Management Plan (CHWMP) that are appropriate for the Town.

E.6 Contaminated Sites. For known contaminated sites and for those that are discovered, the Town shall:

a. Support programs and funding for determination of sites contaminated with hazardous materials and for site cleanup.

b. Pursue site cleanup of sites contaminated with hazardous materials. If the state or federal government does not cleanup a contaminated site in a timely manner, the Town shall consider undertaking or compelling private party cleanup.

c. Require sellers of contaminated sites to complete site cleanup prior to sale or provide notice to prospective buyers as a condition of the sale.

d. Where appropriate, request that the State Department of Toxic Substances Control designate contaminated sites as hazardous waste property. (Planning, Windsor Fire Protection District, Rincon Valley Fire Protection District)

Hazardous Materials Management Ordinance

The Town has adopted the Hazardous Materials Management Ordinance (HMMO) as Title XIII, Hazardous Materials in its Municipal Code. The HMMO regulates the storage, handling, and management of hazardous materials or substances in both waste and non-waste form, except where specifically preempted by state or federal law. It established standards regarding use restrictions, operational permits, the preparation of Hazardous Materials/Waste Inventory Statements (HMIS/HWIS), Business Plans, and Risk Management and Prevention Programs (RMPP), long-term parking of railroad cars or truck tankers, storage and handling of oxidizing, radioactive, and other hazardous materials, site labeling and notifications, etc., and sets out remedial and corrective actions.

ENVIRONMENTAL IMPACTS

Methodology

This analysis is based on a detailed Amended Project Area visit and review of current lists made available by regulatory agencies with jurisdiction over storage, monitoring, and cleanup of hazardous wastes. The boundaries of the Amended Project Area were reviewed to determine existing and planned land use and potential exposure to hazardous materials.

Thresholds of Significance

A project would normally have a significant hazards impact if, through construction activities, attracting people to the site, or use of hazardous materials, it would:

- 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
- Expose people (e.g., residents, pedestrians, construction workers) to ACM, lead based paint, or other hazardous substances
• For a project located within a known or potentially contaminated site, the project results in a safety hazard for people residing or working in the Amended Project Area

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

**Impact 6.6-1** Redevelopment engendered development and infrastructure construction could disturb unidentified contaminated soil and structures. This would be a significant impact.

Redevelopment activities often involve the rehabilitation or reuse of older properties that may result in the discovery of previously unidentified contaminated properties or provide for reuse of identified, but not yet remediated sites. Historical uses, which have created releases of hazardous substances or petroleum products, may be masked by the present or recent uses of the property. In addition, soils near heavily traveled roadways and rail lines can be expected to contain elevated levels of lead and other contaminants. Construction activity could uncover unknown sites of soil contamination that could result in the exposure of construction workers and result in associated significant adverse health effects. Excavation could damage unidentified USTs with some remaining petroleum products that could result in the exposure of construction workers and result in the associated significant adverse health effects. This would be a significant impact.

**Mitigation**

6.6-1a A thorough examination of past property uses shall be required for redevelopment projects involving demolition or reuse of older properties or construction on vacant parcels, prior to demolition or construction. This examination shall conform to the Phase I ESA process established by the American Society for Testing and Materials (ASTM), and shall include a site reconnaissance, a review of regulatory databases, interviews with persons knowledgeable of the property, and a review of past property uses using appropriate historical sources. A Phase II ESA shall be conducted if deemed necessary based on the Phase I ESA results.

6.6-1b If discolored soil, vapors, or contaminated groundwater are encountered during construction activities, all work shall cease until a qualified environmental professional assesses the situation and appropriate action is taken to ensure the safety of workers and the public.

6.6-1c If the Phase I/II indicates the potential for unremediated soil and/or groundwater contamination or UST to be disturbed during construction, the Redevelopment Agency of the Town of Windsor (Agency) shall require in construction contract documents that a hazardous materials removal team be on-call and available for immediate response during site preparation, excavation, and other construction activities. Hazardous material removal activities must be contracted to a qualified hazardous materials removal contractor.

Construction contract documents shall require the hazardous material removal contractor or subcontractor to comply with the following:

a. Prepare a hazardous material discovery and response contingency plan for review by the Sonoma HMD. The Fire District will act as the first responder to a condition of extreme emergency (i.e., fire, emergency medical assistance, etc).
b. In the event that a condition or suspected condition of soil and/or groundwater contamination are discovered during construction, work shall cease or be restricted to an unaffected area of the site as the situation warrants and the Town shall be immediately notified. Upon notification, the Town shall notify the Sonoma County HMD of the contamination condition, and the hazardous material removal contractor shall prepare a site remediation plan and a site safety plan, the latter of which is required by OSHA for the protection of construction workers. Similarly, the hazardous material removal contractor shall follow and implement all directives of the Sonoma County HMD and any other jurisdictional authorities that might become involved in the remediation process.

c. Preparation of any remediation plan shall include in its focus measures to be taken to protect the public from exposure to potential site hazards and shall include a certification that the remediation measures would clean up the contaminants, dispose of the wastes properly, and protect public health in accordance with federal, state, and local requirements.

d. Obtain closure and/or No Further Action letters from the appropriate agency(ies).

e. Construction contract documents shall include provisions for the proper handling and disposal of contaminated soil and/or dewatering water (including groundwater and contaminated rainwater) in accordance with federal, state, and local requirements.

Significance after Mitigation

Less than significant

Impact 6.6-2 Redevelopment could result in the rehabilitation or demolition of buildings likely to contain asbestos, lead-based paint, or other hazardous substances. This would be a potentially significant impact.

The Amended Project Area contains a large number of residential and commercial structures built before 1978, which are likely to contain asbestos, lead-based paint, or other hazardous substances. The deteriorated condition of many of these buildings presents an ongoing risk of release of these materials into the environment. Demolition or rehabilitation of such structures could also result in a release of hazardous materials into the environment.

Asbestos, a naturally-occurring fibrous material, was used as a fireproofing and insulating agent in building construction before such uses were terminated due to liability concerns in the late 1970s. Because it was widely used prior to the discovery of its health effects, asbestos may be found in a variety of building materials and components such as insulation, walls and ceilings, floor tiles, and pipe insulation. Friable (easily crumbled) materials are particularly hazardous because inhalation of airborne fibers is the primary mode of asbestos entry into the body. Non-friable asbestos is generally bound to other materials, such that it does not become airborne under normal conditions. Non-friable asbestos and encapsulated friable asbestos do not pose substantial health risks.

Asbestos exposure is a human respiratory hazard. Asbestos-related health problems include lung cancer and asbestosis. Cal/OSHA considers asbestos-containing building material a hazardous substance when a bulk sample contains more than 0.1% asbestos by weight. Cal/OSHA requires that a qualified contractor licensed to handle asbestos materials handle any material containing more than 0.1% asbestos by weight. Any activity that
involves cutting, grinding, or drilling during building renovation or demolition or relocation of underground utilities could release friable asbestos fibers unless proper precautions are taken. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, making friable materials the greatest potential health risk.

There are currently federal laws and regulations in place that regulate the use, removal, and disposal of ACM. Such laws and regulations include:

**US Department of Labor, Occupational Safety & Health Administration (OSHA)**
- 29 CFR Part 1910.134 (Respirator Regulations)
- 29 CFR Part 1926.1101 (Construction Asbestos Regulations)

**US Environmental Protection Agency (EPA)**
- 40 CFR Part 763 Subpart E, Asbestos Emergency Response Act (AHERA), and reauthorization through ASHARA
- Various EPA Guidance Documents/Books

**California Labor Code**
- Sections 6501.5, 6501.7, 6501.8, and 6505.5

**California Code of Regulations (CCR)**
- Title 8, Title 17, Title 22 and Title 26

**Other major lead regulations, both Federal and specific to the State of California, include:**
- The Residential Lead-Based Paint Hazard Reduction Act of 1992 (16 CFR 1303)
- Toxic Substances Control Act (TSCA) Section 402, 403, 404, 405 and 406
- California Health & Safety Code, Sections 1367.3, 17961, 17980, 105185 to 105197, 105250, 105251 to 105257, 105275 to 105310, 108550 to 108580, 110552, 116875 to 116880, 124130, 124125 to 124165, 17920.10, and 25214.1 to 25214.4.2
- California Civil Code, Sections 1102 to 1102.16
- California Insurance Code, Section 10119.8
- California Education Code 32240 to 32245
- California Labor Code 6716 to 6717

Lead is also likely to be present in older structures. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06% (600 parts per million (ppm)). However, some paints manufactured after 1978 for industrial or marine uses legally contain more than 0.06% lead. Excessive exposure to lead (even low levels of lead) can result in the accumulation of lead in the blood, soft tissues, and bones. Children are
particularly susceptible to potential lead-related health problems because it is easily absorbed into developing systems and organs.

Heavy metals can also be found in and around older structures. Old light tubes, thermostats, and other electrical equipment typically contain heavy metals such as mercury. Elemental mercury can also be found in many electrical switches. Due to accidental spills and historic disposal practices before the adoption of more stringent disposal regulations, it is possible elemental mercury may be present in older commercial and industrial properties. Mercury liquid evaporates slowly if exposed to air, and, at certain levels of exposure, mercury vapors are toxic and can cause kidney and liver damage.

Another common contaminate found in older structures is Polychlorinated biphenyl (PCB). PCB is an organic chemical, usually in the form of oil that was historically used in electrical equipment. PCBs are most commonly associated with pole-mounted electrical transformers, but they were also used in insulators and capacitors in building electrical equipment. PCBs are highly persistent in the environment, and exposure to PCBs can cause serious liver, dermal and reproductive system damage. PCBs are also a suspected human carcinogen.

Although there is a regulatory framework in place that governs the removal and disposal of these hazardous items once identified, most structures in the Amended Project Area have not been thoroughly investigated to determine the types, amounts, and locations of hazardous substances that could be present in building materials. Therefore, redevelopment activities such as demolition, rehabilitation, and housing construction could expose construction workers and future residents to unmitigated hazards associated with the presence of hazardous substances (e.g., asbestos, lead, PCBs, etc.) during demolition. This is a potentially significant impact.

Demolition activities would be subject to all applicable federal, state, and local regulations to minimize potential risks to human health and the environment, and worker and public safeguards would be included in the demolition contract.

**Mitigation**

**6.6-2a** Prior to any Agency rehabilitation or demolition activities, the Agency shall conduct an interior survey to evaluate the presence of ACM, lead based paint, PCB-containing electrical and hydraulic fluids, and/or chlorofluorocarbons (CFCs), as well as any other potential environmental concerns (i.e., aboveground/underground fuel tanks, elevator shafts/hydraulic lifts, floor drains/sumps, chemical storage/disposal) which may be present within structures on a project site.

**6.6-2b** A project applicant for a project subject to an Owner Participation Agreement (OPA) or Disposition and Development Agreement (DDA) shall provide written documentation to the Agency that ACM and lead-based paint has been abated and any remaining hazardous substances and/or waste have been removed in compliance with applicable state and local laws and regulations.

**Significance after Mitigation**

Less than significant
CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.6-3 Redevelopment of the Amended Project Area would contribute to cumulative increases in the use of hazardous substances during construction and occupancy. This would be a less-than-significant cumulative impact.

As redevelopment activities remove barriers to General Plan build-out, the construction and operation of current and future projects within the Town would continue to involve the use of hazardous substances. Projects that use, store, transport, or dispose of hazardous substances would be required to comply with federal, state, and local regulations to ensure the safe handling of these materials. Due to strict regulation, the risk of release or exposure to hazardous substances within the Amended Project Area would be minimized. Associated health and safety risks would generally be limited to those individuals using the substances or to persons in the immediate vicinity of the substances. Although the risk of accident or inadvertent releases cannot be completely avoided, hazardous substances incidents would typically be site-specific, generally one-time occurrences that would not combine with similar effects elsewhere. Implementation of applicable hazardous materials management laws and regulations adopted at the federal, state, and local levels, which are monitored by the Town, EHD, and the California Highway Patrol (CHP), would ensure cumulative impacts related to hazardous substances use remain less than significant. The Amendment’s net contribution to this cumulative impact would be a small increment, and would be less than cumulatively considerable, and therefore is a less-than-significant impact.

Mitigation

None required

Impact 6.6-4 Redevelopment of the Amended Project Area would contribute to cumulative increases in the number of people who could be exposed to accidental or intentional release of hazardous substances on rail lines and roadways. This would be a less-than-significant cumulative impact.

The release of a hazardous material to the environment as a result of a transportation accident could cause a multitude of problems to the environment, property, or human health—the significance of which would be dependent on the type, location, and quantity of the material released. Although hazardous material incidents can happen almost anywhere, urbanized areas such as the Windsor area at higher risk.

The Town contains a major transportation artery, US 101, and the NWPRR ROW, which proposes to operate up to 6 freight trains a day through the Amended Project Area. Each mode would involve the transportation of hazardous substances through and into the Town each year. Considerations must also be made for the numerous agriculturally related businesses located in the area. Therefore, the Windsor area is already at risk of the effects of a major catastrophic hazardous materials emergency due to the proximity of the transportation routes to populated areas, and as the Town’s population grows, more people could be at risk of exposure to a catastrophic incident.

When a hazardous material emergency occurs, multiple resources are available, with the Fire District leading the response activities. The response to an incident may be in the territory of the Town, the County, and on mutual aid calls. A new fire station has been recently constructed, with 24 hours a day, 7 days a week emergency services available on both sides of US 101. The HMMO further manages transportation and rail/tanker parking.
Redevelopment activities in the Amended Project Area would not result in any changes in the regional transportation of hazardous substances via roadway, rail, air, or water. If a hazardous materials incident were to occur within the Amended Project Area or anywhere else in the Town, it would be unpredictable – and the effects site-specific, such that there would not be a combined effect. Redevelopment activities are anticipated to remove barriers to development, but only within the limits planned for in the General Plan. No changes in land use are proposed as a part of the Amendment. Public facilities improvements could improve emergency access and safety improvements at rail crossings. The proposed Amendment would be a less than cumulatively considerable contribution to transportation risks, and therefore is a less-than-significant impact.

Mitigation
None required
6.7

HYDROLOGY AND WATER QUALITY

Windsor Redevelopment Project Proposed Fifth Amendment
**INTRODUCTION**

This Subchapter of the Environmental Impact Report (EIR) addresses potential effects to hydrologic resources in the Existing Project Area and Added Area (Amended Project Area), including surface water and groundwater resources, flooding, and water quality that could be caused by implementation of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). Site characteristics such as regional and local drainage, flooding conditions, and water quality are described.

Issues related to the generation of wastewater, stormwater drainage, and the capacity of the Town to handle flows in the Amended Project Area, are addressed in Chapter 6.9, Public Services and Utilities.

For the purposes of this analysis there would be no environmental effects related to seiche, tsunami, or mudflow. The Amended Project Area is located about 20 miles from the Pacific Ocean, east of the Coastal Range, and is at an elevation of approximately 115 to 125 feet (National Geodetic Vertical Datum [NGVD]). As a result of the site’s distance from the ocean and elevation, exposure of the site to coastal hazards, such as tsunamis, extreme high tides, or sea level rise, would not be expected. Therefore, these issues are not discussed further in this EIR.

There were no comment letters in response to the Notice of Preparation (NOP) regarding hydrology or water quality.

**ENVIRONMENTAL SETTING**

**CLIMATE**

Windsor’s climate is characterized as dry-summer subtropical, or Mediterranean, with cool wet winters and relatively warmer, dry summers. The mean annual rainfall in the Town of Windsor (Town) is approximately 38 inches.\(^1\) Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rainstorms occur at a frequency of about once every three years.\(^2\)

**RUSSIAN RIVER WATERSHED**

The term watershed refers to an area that is tributary to or drains to a particular river or creek system. The Town lies almost entirely within the drainage basin of Windsor Creek, which roughly bisects the Town in two and is part of the larger Mark West Creek watershed, a subbasin of the Russian River watershed (Figure 6.7-1). The Mark West Creek subbasin

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covers an area of approximately 83 square miles, including the Town and the northern outskirts of the Santa Rosa urban area. The primary stream in the subbasin, Mark West Creek, is a tributary to the Russian River. Elevations in the subbasin range from 50 feet mean sea level (MSL) near the confluence of Mark West Creek and the Russian River to over 2,000 feet MSL near Diamond Mountain in the eastern subbasin.

Major Creeks and tributaries in the subbasin include the Mark West, Windsor, Porter, Wright, Poole, Mill, and the Van Buren creeks. Low gradients in the lower reaches of Windsor, Poole, and Mark West creeks cause water from the Russian River to backup and flood some portions of the western subbasin during high-intensity, short-duration storm events. Windsor Creek is the primary creek draining the Amended Project Area.

**LOCAL SURFACE WATER**

There are several creeks and their tributaries that flow through the Amended Project Area, including Windsor Creek, East Windsor Creek, Starr Creek, and their tributaries Gumview and Sotoyome creeks. These creeks drain to the larger Mark West watershed, which encompasses the hills east and northeast of Windsor, and drain in a southwest and westerly
direction across the Windsor plain. The major branches of the watershed network include Starr, Windsor, East Windsor, Pool, and the Pruitt creeks. A minor tributary, Gumview Creek, heads just north of Windsor River Road near the western town limits and flows south to Windsor Creek. Additionally, a short reach of Sotoyome Creek, a direct tributary to the Russian River, crosses the proposed Added Area along the northern border.

The Water Quality Control Plan for the North Coast Basin (Basin Plan) does not identify any beneficial uses specifically for Amended Project Area creeks, but the Basin Plan does identify present and potential beneficial uses for the Mark West Hydrologic Subarea, to which Amended Project Area creeks are tributary. The Basin Plan identifies the following existing beneficial uses for the Mark West Hydrologic Subarea:

- Agricultural supply
- Freshwater replenishment; navigation
- Groundwater recharge
- Hydropower generation
- Industrial service supply
- Migration of aquatic organisms
- Municipal and domestic supply
- Rare, threatened, or endangered species
- Spawning, reproduction, and/or early development
- Warm and cold freshwater habitat
- Water contact and non-contact recreation
- Wildlife habitat

Possible beneficial uses include industrial process supply and shellfish harvesting. In addition, the State Water Resources Control Board (SWRCB) Resolution 88-63 (Sources of Drinking Water Policy), incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires the North Coast Regional Water Quality Control Board (NCRWQCB) to assign the municipal and domestic supply use to water bodies that do not have beneficially listed uses.

GROUNDWATER

Groundwater is generally confined to geologic formations with high porosity or water-holding capacity called aquifers on a local scale, and groundwater basins on a regional scale. The groundwater basin underlying the Town is the Santa Rosa Plain, a subbasin (California Department of Water Resources (DWR) number 1-55.01) of the Santa Rosa Valley Basin (DWR, 2003). The Santa Rosa Plain drains northwest toward the Russian River, and is thus part of the North Coast Hydrologic Region. The geology of the Santa Rosa Plain Subbasin is complex and the stratigraphic relationships are the subject of recent and continuing studies, including mapping by the USGS and others (USGS, 2002). The subbasin is cut by many northwest-trending faults that influence groundwater flow. Most of the groundwater is unconfined, but in some locations can be confined where folding and faulting exists (DWR, 2003). The water-bearing deposits underlying the basin include the Wilson Grove Formation, the Glen Ellen Formation, and younger and older alluvium (DWR, 2003).

Most of the Town is underlain by the Glen Ellen geological formation, which is generally described as older consolidated alluvial fan materials consisting of partially cemented

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gravel, sand, and silt. The Glen Ellen formation is used for domestic supply and some irrigation (DWR, 2003). Additional ground-water sources are derived from alluvium areas along the watercourses. Many of these alluvial deposits have sufficient permeability to act as recharge areas for the regional aquifer.

During and after a storm event, rainfall may infiltrate into the ground surface, move downward through spaces between soil particles, and enter a zone of saturation. This zone of saturation is also referred to as groundwater and its replenishment by water moving downward is called groundwater recharge. Land areas vary widely in their recharge capability, depending on soil conditions and the underlying geology. In Sonoma County (County), rivers and stream corridors are important source areas for groundwater recharge, as are some upland areas underlain by permeable formations.

The Windsor Urban Water Management Plan (UWMP) does not consider the Town’s Russian River Well Field to be groundwater, because it taps underflow of the Russian River and is a surface water right. The UWMP concluded that groundwater levels in the basin have had variable trends since 1990, but most wells have been relatively stable. Based on regional groundwater level mapping, the average depth to first groundwater in the Amended Project Area ranges from approximately 14 feet below the ground surface (bgs) to 55 feet bgs.  

**FLOODING**

Most of the Amended Project Area is located within Zone X\(^5\) of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), as identified on Community Panel Numbers 06097C0554E, 06097C0562E, 06097C0566E, 06097C0568E, and 06097C0569E, dated 12/02/08 (Figure 6.7-2). As noted above, there are several creeks and their tributaries that flow through the Amended Project Area.

The floodways of these creeks have been delineated and are designated Flood Hazard Zone AE\(^6\); this zone adversely affects approximately 40 properties in the Existing Project Area and Old Redwood Highway area.

**Localize Flooding**

The Town’s flood hazard areas along its creeks are subject to periodic inundation, which has been determined by the Town to be “caused by uses that are inadequately elevated, floodproofed, or protected from flood damage. The cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities also contributes to flood losses” (Ord. No. 2008-235 § 2 (part)).

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\(^5\) Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. Insurance purchase is not required in these zones (FEMA, 2009).

\(^6\) Areas subject to inundation by the 1-percent-annual chance flood event determined by detailed methods. Mandatory flood insurance purchase requirements and floodplain management standards apply (FEMA, 2009).
Figure 6.7-2
FEMA Flood Zones

Source: Ervin Consulting Group, 2009
FEMA National Flood Hazard Layer, 8/20/2009

Town of Windsor, CA Redevelopment Plan Fifth Amendment
Prepared 9/29/2009 by
The Ervin Consulting Group

Source: Ervin Consulting Group, 2009
FEMA National Flood Hazard Layer, 8/20/2009

FEMA FLOOD ZONES
Standing water has also been noted in various parts of the Amended Project Area during winter months. The majority of the Town is underlain with Huichica Loam soil (a shallow soil of 0 to 9% slope). Huichica Loam is moderately well drained soil with a clay subsoil, runoff is slow and permeability is low. A small northern portion of the Added Area is underlain by Cole Silt Loam soil (0 to 2% slope). Cole Silt Loam is a somewhat poorly drained loam soil with a dominant clay subsoil, it has a low permeability and slow runoff, particularly as the Amended Project Area is nearly level. Most drainage is by sheet flow to creeks, swales, and roadside drainage facilities. Standing water on vacant parcels is common due to the low permeability of the underlying soil and lack of constructed drainage structures.

**Dam Failure**

The Warm Springs Dam, located 12 miles west of Healdsburg on Dry Creek Road, could, in the event of dam failure, result in widespread flooding in the Town (Sonoma County, 1985). Lake Sonoma is formed by Warm Springs Dam and has a maximum storage capacity of 381,000 acre-feet. The entire Amended Project Area would be inundated except the higher ground above 100 feet in elevation. According to the Sonoma County Dam Failure Evacuation Plan for this area, flood waters would reach Windsor within one to two hours following the event. This would allow sufficient time for emergency evacuation of the Town.

**WATER QUALITY**

Surface water quality in the County is monitored by the NCRWQCB. The NCRWQCB and several other agencies have monitored the water quality of the Russian River watershed since the early 1970s. Monitoring results indicate that levels of total nitrate, total phosphate, dissolved oxygen (DO), hydrogen ion concentration (pH), and toxic chemical (carcinogenic and non-carcinogenic organic chemicals) concentration are, for the most part, in compliance with water quality objectives. The NCRWQCB has classified the entire Russian River watershed as an impaired water body due to excessive sedimentation and siltation. Elevated water quality constituents in the main stem of the Russian River are generally associated with total dissolved solids (TDS), turbidity, and high bacteria concentrations. Recreational users and malfunctioning individual septic systems contribute to the introduction of fecal coliform bacteria into the river. Sedimentation and siltation problems contributed by the Mark West Creek subbasin have generally been attributed to the following:

- Agriculture
- Agriculture-grazing
- Agriculture-storm runoff
- Channel Erosion
- Construction/Land Development
- Disturbed Sites (Land Development)
- Drainage/Filling of Wetlands
- Erosion/Siltation
- Harvesting, Restoration, Residue Management
- Highway/Road/Bridge Construction
- Intensive Animal Feeding Operations
- Irrigated Crop Production
- Land Development
- Other Urban Runoff
- Range Grazing-Riparian

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7 Sonoma County GP 2020 Draft EIR, Hydrology and Water Resources Chapter.
HYDROLOGY AND WATER QUALITY

- Range Grazing-Riparian and/or Upland
- Removal of Riparian Vegetation
- Silviculture
- Specialty Crop Production
- Streambank Modification/Destabilization
- Surface Runoff

Activities such as logging, mining, grazing, channel clearing, levee construction, urbanization, roads, and water diversions have resulted in decreased vegetative cover in the watershed. The lack of riparian and upland vegetation creates a situation where precipitation is not retained or stored as efficiently, resulting in rapid runoff and potential flooding. A decrease in water retention underground results in surface water with higher temperatures, which can impair water quality. Increased runoff can contribute to increased sediment yields. Increased sediment yields can affect the water quality in the watershed, adversely affecting fish and other biotic habitat. Sediments can also deposit behind dams in the watershed, decreasing reservoir storage capacity, and impairing flood control capability and power generation storage.

REGULATORY SETTING

FEDERAL

Clean Water Act

The federal Clean Water Act (CWA), enacted by Congress in 1972 and amended several times since inception, is the primary federal law regulating water quality in the United States and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation’s rivers, streams, lakes, and coastal waters. The CWA prescribes the basic federal laws for regulating discharges of pollutants into waters of the United States (waters of the US), which includes setting water quality standards for contaminants in surface waters, establishing wastewater and effluent discharge limits from various industry categories, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the CWA is administered by the United States Environmental Protection Agency (EPA). At the state and regional levels, the act is administered and enforced by the SWRCB and the regional water quality control boards (RWQCBs).

National Pollutant Discharge Elimination System

Since 1972, the CWA has regulated the discharge of pollutants to waters of the U.S. from all point sources. Section 402(d) of the CWA establishes a framework for regulating nonpoint source (NPS) stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). Established in 1990, Phase I of the NPDES stormwater program regulates stormwater discharges from major industrial facilities, large and medium-sized municipal separate storm sewer systems (those serving more than 100,000 persons), and construction sites that disturb five or more acres of land. In 1999 the NPDES stormwater program was expanded to include Phase II. Pursuant to the Phase II NPDES Final Rule in December 1999, discharges of stormwater associated with construction activities that result in the disturbance of one acre of land or more must also apply for coverage under the statewide NPDES General Construction Activities Permit.
Federal Emergency Management Agency

The Town is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that buildings and related structures should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years although such a flood may occur in any given year. Communities are occasionally audited by the DWR to insure the proper implementation of FEMA floodplain management regulations.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) is the main federal law that ensures the quality of Americans' drinking water. The SDWA authorizes the EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The EPA, states, and water systems then work together to make sure that these standards are met. The EPA sets threshold standards for dioxin and furan contaminant levels.

STATE

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (effective January 1, 2009) is the primary statute covering water quality in California. The act sets out specific water quality provisions and discharge requirements regulating the discharge of waste within any region that could affect the quality of state waters. Under the Act, the SWRCB has the ultimate authority over state water rights and water quality policy. The nine RWQCBs are responsible for the oversight of water quality on a day-to-day basis at the local/regional level. Within each region, the RWQCBs have prepared and periodically updated Basin Plans that identify existing and potential beneficial uses for specific water bodies.

State Water Resources Control Board and North Coast Regional Water Quality Control Board

The SWRCB is responsible for implementing the federal CWA and does so through issuing NPDES permits through RWQCBs. The Amended Project Area is located within a portion of the state regulated by the NCRWQCB.

The Town’s stormwater discharge is regulated by a NPDES permit issued by the SWRCB under the requirements of the EPA and Section 402 of the CWA. The goal of this permit is to reduce pollutants found in urban stormwater runoff. This permit requires the Town to comply with applicable water quality and performance standards, and is further discussed below.
California General Construction Storm Water Permit (Water Quality Order No. 99-08-DWQ)

The SWRCB has issued a statewide General Construction Permit (Water Quality Order No. 99-08-DWQ) for construction activities within the state, which is in effect until June 30, 2010. The General Construction Permit is implemented and enforced by the RWQCBs. The General Construction Permit applies to dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more. The permit currently requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that identifies Best Management Practices (BMPs) to minimize pollutants from discharging from the construction site to the maximum extent practicable. The NCRWQCB evaluates each project on a project-by-project basis and BMPs appropriate for a proposed project must be approved by the NCRWQCB to ensure water quality protection. The SWPPP must also include BMPs for preventing the discharge of other NPS pollutants besides sediment (e.g., drilling lubricant, oil, concrete, cement) to downstream waters, as well as a detailed description of (and schedule for) all monitoring. Construction activities that are subject to the project include, but are not limited to: clearing, grading, demolition, excavation, construction of new structures, and reconstruction of existing facilities involving removal and replacement that results in soil disturbance.

On September 2, 2009, the State Water Resources Control Board (State Board) adopted a new NPDES Construction General Permit that will significantly change storm water management requirements for any construction or demolition activity that results in a land disturbance equal to or greater than one acre. Effective July 1, 2010, all dischargers are required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The new permit requirements are significantly different and in places more stringent than those under the existing permit. Under the existing permit that has been in effect for the last 10 years, dischargers who implement Best Management Practices to the best of their ability are deemed to be in compliance with the Permit. The New Permit, however, sets quantitative standards that must be achieved, regardless of the BMPs that are implemented. In addition, whereas the existing permit relies on discharger-developed SWPPPs, as its primary compliance mechanism, the effect of SWPPPs is much more limited under the new permit.

California General Construction Storm Water Permit (Water Quality Order No. 5-00-175)

Certain actions also need to conform to a General Construction Permit (Water Quality Order No. 5-00-175) that requires that a permit be acquired for dewatering and other low threat discharges to surface waters, provided that they do not contain significant quantities of pollutants and are either (1) four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day (mgd). Examples of activities that may require the acquisition of such a permit include well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, water supply system discharges, and other miscellaneous dewatering/low threat discharges.
**Post Construction Storm Water – Water Quality (Water Quality Order No. 2003-0005-DWQ)**

Currently, the Town falls under the jurisdiction of Water Quality Order No. 2003-0005-DWQ pertaining to post construction storm water BMPs for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) associated with NPDES Phase II program communities. The Town is a regulated MS4 operator and has adopted a Phase II NPDES Stormwater Management Plan (SWMP), consistent with the Storm Water Phase II Final Rule for operations of regulated small MS4s. The Town’s approved plan, implemented November 15, 2005, provides the implementation guidelines of the NPDES permit. The SWMP maintains compliance with the NPDES Stormwater Discharge Permit and promotes stormwater pollution prevention within that context. The SWMP includes the following six mandatory minimum control measures:

- Public Education and Outreach on Storm Water Impacts
- Public Involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management in New Development
- Redevelopment and Pollution Prevention/Good Housekeeping for Municipal Operations

**California General Industrial Storm Water Permit (Water Quality Order No. 97-03-DWQ)**

The SWRCB has also issued a statewide General Permit (Water Quality Order No. 97-03-DWQ) for regulating storm water discharges associated with industrial activities. These activities include any manufacturing operations, transportation facilities where vehicles are maintained (maintenance includes fueling and washing), landfills, hazardous waste sites, and other similar operations. This General Permit requires the implementation of management measures that will achieve the performance standard of best available technology (BAT) that is economically achievable and best conventional pollutant control technology (BCT). It also requires the development of an SWPPP, a monitoring plan, and the filing of an annual report.

**LOCAL**

**Town of Windsor General Plan**

The General Plan has established objectives regarding water resources and water quality, and flood-related hazards. The following Windsor General Plan Public Health and Safety (PHS) Chapter policies and implementation programs addressing hydrology and water quality are applicable to the proposed project:

**Policies**

**PHS-B.1** Minimize the risks to lives and properties due to flood hazards

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PHS-B.1.1 The Town shall require that new residential, public, commercial, and industrial development be required to have protection from a 100-year flood.

PHS-B.1.4 The Town shall support floodplain management over flood control structures for preventing damage from flooding except where the intensity of development requires a high level of protection and justifies the costs of structural measures. Where flood control structures are necessary, the Town shall require appropriate mitigation for loss of riparian vegetation and habitat.

PHS-B.1.5 The Town shall require property owners/developers who benefit from the installation of drainage facilities which handle stormwater runoff from new development to pay for the cost of these improvements.

Implementation Programs

PHS-B.3 Flood Control Management. The Town shall amend its development regulations and building codes to encourage the use of natural drainageways and non-structural flood protection methods to convey stormwaters and shall minimize alteration of natural drainageways as much as possible.

PHS-E.13 Project Review. The Town shall continue to review development applications to assure:

a. conformance of proposed water supply, wastewater collection, and stormwater drainage facilities with Town development standards
b. consideration of nonstructural options for stormwater drainage
c. consideration of public safety
d. undergrounding of utilities
e. compliance with guidelines for water conservation and drought-tolerant landscaping

PHS-E.4.9 The Town shall modify the Master Drainage Plan to reflect the policy guidance provided by the Windsor General Plan. Once amended, the Master Drainage Plan shall serve as the Town’s guide to the provision of storm drainage capacity, collection lines, and storage facilities.

PHS-E.4.10 The Town shall encourage the use of natural or nonstructural stormwater drainage systems, to preserve and enhance the natural features of a site, and to assist with the replenishment of the area’s groundwater basin.
**Flood Damage, Flood Control, and Drainage Ordinance**

Title IX of the Town of Windsor Municipal Code (Municipal Code) outlines the Towns’ Flood Damage, Flood Control, and Drainage Ordinance (amended by Ord. No. 2008-249). A development permit must be obtained before any construction or other development, including manufactured homes, within any area of special flood hazard zone. This Ordinance includes regulations to:

- Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters
- Control filling, grading, dredging, and other development which may increase flood damage
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas

**Zoning Ordinance Section 27.16.040 - Flood Hazard (-F) Overlay District**

The Flood Hazard (-F) overlay zoning district is applied to areas within the Town prone to flooding, to protect people and property by requiring that proposed development and new land uses be designed and constructed so as to minimize the risk of flood damage, and to not increase the flood hazard on other properties. This overlay is applied to areas identified as flood hazard areas on FEMA maps, and to other areas that may be identified by the Town Engineer as being subject to flooding. Development standards are applied to prevent encroachment of flood waters on adjacent properties, and prevent undue increases in flood heights and danger to life and property within this and adjoining districts.

**ENVIRONMENTAL IMPACTS**

**METHODOLOGY**

Analysis of potential hydrology and water quality impacts is based on review of existing and planned development in the Amended Project Area to establish existing conditions and to identify potential environmental effects, based on the standards of significance presented in this Subchapter.

Impacts on surface and groundwater quality were analyzed by reviewing existing groundwater and surface water quality literature that pertains to the Amended Project Area, identifying existing on-site ground and surface waters, and evaluating existing and potential sources of water quality pollutants based on the types of land uses and operational activities in the Amended Project Area. Additionally, the applicability of federal and state regulations, ordinances, and/or standards to surface and groundwater quality of the Amended Project Area and subsequent receiving waters were assessed. Potential impacts from implementation of the Amendment were determined by evaluating whether redevelopment
activities or redevelopment-engendered development would exceed the thresholds of significance outlined below.

Impacts on water quality are assessed as a function of potential pollutant types, concentrations, and load (effect of flow quantity changes). These are evaluated qualitatively because specific design characteristics and land uses that could affect the amount, type, and susceptibility to runoff of potential pollutants are not known until development occurs over the life of the Amendment.

THRESHOLDS OF SIGNIFICANCE

Criteria from the California Environmental Quality Act (CEQA) Guidelines are used to determine the significance of hydrology, water quality, and flood hazard impacts. The project will normally have a significant effect on the environment if it will:

- Violate any water quality standards or waste discharge requirements
- Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or exceed the capacity of existing or planned stormwater drainage systems
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or expose people or structures to a significant risk of loss, injury, or death involving flooding

PROJECT COMPONENTS

The proposed Amendment would provide tax increment financing to fund capital improvements, housing, economic development incentives, and financial incentives for rehabilitation and redevelopment. The potential water facility and drainage improvement projects could include – but are not limited to – storm system improvements, storm system rehabilitation/street improvements, water treatment equipment, and street drainage to prevent erosion and flooding. The Amendment may assist these projects as approved by the Town after site-specific environmental review.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

**Impact 6.7-1 Construction of redevelopment projects or redevelopment-engendered projects could degrade the quality of receiving water bodies. This would be a less-than-significant impact.**

Construction activities associated with redevelopment activities and redevelopment engendered development would result in land-disturbing activities such as grading, excavation, and trenching for utility and infrastructure installation. When lands within the Amended Project Area are excavated or otherwise disturbed by construction activities, the potential for soil erosion and sedimentation in runoff discharging from the construction site would substantially increase during a rainstorm. In addition, construction equipment would have the potential to leak polluting materials, including oil and gasoline. Improper use of fuels, oils, and other construction-related hazardous materials – such as pipe sealant – may also pose a threat to surface or groundwater quality. Through stormwater runoff, these
sediments and contaminants may be transported to the local stream system, to the Russian River, and downstream drainages and water bodies.

Although earth-disturbing activities associated with construction within the Amended Project Area would be temporary, on- or off-site soil erosion, siltation, discharges of construction-related hazardous materials could degrade downstream surface waters. Existing regulatory mechanisms would regulate construction activities and minimize the degradation of water quality. Before the onset of any construction activities, where the disturbed area is one acre or more in size, the Town would require contractors to obtain coverage under the NPDES General Construction Permit and include erosion and sediment control plans. As a performance standard, the General Construction Permit requires controls of pollutant discharges that use BAT that is economically achievable, BCT to reduce pollutants, and any more stringent controls necessary to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other non-point source runoff.

All projects will be required to obtain a NPDES General Permit for Stormwater Associated with Construction Activity to mitigate construction and post-construction impacts related to erosion, siltation and flooding through, among other things, best management practices (BMPs) from Attachment 4 of the NPDES Phase II Municipal Stormwater General Permit standards. Currently, construction sites equal to or greater than 1 acre are required to prepare a site-specific SWPPP that includes BMPs from Attachment 4 of the NPDES Phase II Municipal Stormwater General Permit standards. The appropriate BMPs vary depending on the nature of a project, its roads, soils, topography, proximity to waterways and other factors. These requirements will change when the new permit becomes effective on July 1, 2010.

Measures range from source controls, such as reduced surface disturbance, to treatment of polluted runoff, such as detention or retention basins. BMPs to be implemented as part of the General Construction Permit may include, but are not limited to, the following measures:

- Temporary erosion and sediment control measures (such as straw mulch and tackifier, silt fences, staked wattles, silt/sediment basins and traps, check dams, geofabric, and temporary revegetation or other ground cover) will be employed to control erosion and sedimentation from disturbed areas.
- Drainage facilities in downstream off-site areas will be protected from sediment using BMPs.
- Grass or other vegetative cover or other approved erosion control measures will be established on the construction site as soon as possible after disturbance. No disturbed surfaces will be left without erosion control measures in place.

Prior to issuance of a construction permit, the Town would require contractors to provide an erosion and sediment control plan. Standard conditions of approval require that the SWPPP must be prepared by a Registered Civil Engineer and shall demonstrate how water quality impacts from construction and development will be properly treated to prevent siltation to downstream waters and to remove pollutants such as oil, grease, and garbage from downstream discharge of storm water, particularly during the first storms of the season. These methods must be provided to the satisfaction of the Town Engineer before construction can begin.
The Town performs inspections of the construction area, to verify that the BMPs specified in the erosion and sediment control plan are properly implemented and maintained. The Town notifies contractors immediately if there is a noncompliance issue and requires compliance. Control of erosion and sediment transport during the construction phase would effectively mitigate potential sediment impairment of receiving waters.

All development must also be designed to prevent contamination in accordance with standards accepted by or imposed by the Town, Sonoma County Environmental Health Division (EHD), and the NCRWQCB. Measures include, but are not limited to:

- A requirement to connect to the Town's wastewater collection and treatment system
- Use of BMPs to control runoff from new development
- Requiring the preparation of erosion and sediment control plans
- The use of detention/retention basins not only to control erosion, but also to minimize the potential for flooding

The Amendment would further provide capital improvements to improve water quality and drainage. Adherence to the Flood Damage, Flood Control, and Drainage Ordinance, General Plan Policy B.3, and State NPDES General Construction Permit requirements would ensure construction erosion, sedimentation, and water quality impacts as a result of redevelopment activities would be less than significant.

**Mitigation**

None required

**Impact 6.7-2** Redevelopment in the Amended Project Area would generate new sources of runoff that could increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, or exceed the capacity of existing or planned stormwater drainage systems. This would be a potentially significant impact.

Redevelopment is intended to remove barriers to General Plan build-out within the Amended Project Area. As development occurs on scattered vacant parcels, there would be an increase in impervious surfaces. As such, over time, build-out in the Amended Project Area would increase stormwater and non-stormwater runoff entering local creeks and the Russian River watershed compared to existing conditions.

Land within the Existing Project Area is largely developed and covered with impervious surfaces except in some of vacant or underdeveloped parcels. The Added Area along Old Redwood Highway and the Shiloh Area are primarily low density residential and commercial parcels with large open, pervious spaces. Planned development of the Amended Project Area over the life of the Amendment is anticipated to result in an increase in stormwater runoff from new structures, streets, and parking areas. However, it is not anticipated that planned development would alter the existing drainage pattern as drainage facilities are constructed. Future development is not anticipated to alter the course of any creeks, and the Town's creek setback and floodplain ordinance provisions would protect the creeks within the Amended Project Area. As specified in the General Plan (Policy E.4.10), the Town encourages the use of natural or nonstructural stormwater drainage systems, to
preserve and enhance the natural features of a site and to assist with the replenishment of the area’s groundwater basin.

The Amendment would provide drainage infrastructure improvements to meet the needs of redevelopment engendered development in the Amended Project Area. The Town of Windsor Public Works Department (Public Works Department) has the authority to require project-specific drainage plans that would typically include on-site drainage features such as gravel infiltration beds, pervious landscaped areas, or detention/retention facilities. The Amendment would further provide capital improvements assistance for improving storm drains, flood control improvements, curbs and gutters, and other drainage systems and capacity. However, individual redevelopment projects could result in a potentially significant impact on drainage systems and localized flooding on a case-by-case basis.

Mitigation

The following measures shall be required for future redevelopment projects, as applicable:

6.7-2a A final drainage plan shall be prepared for a project and off-site improvements by a Registered Civil Engineer to determine how drainage will be properly managed as the individual parcels are developed, and the necessary locations and size of common storm water detention facilities, drainage easements, and access easements for maintenance.

6.7-2b The methods shown shall not adversely affect adjacent or downstream properties. Storm drainage facilities shall be sized and installed in accordance with the project improvement plans as approved by the Town Engineer, and in accordance with the construction standards of the Public Works Department.

6.7-2c Prior to issuance of a grading permit, the project proponent shall provide the Town with documentation prepared by a licensed engineer verifying that road and utility improvements constructed within a 100-year floodplain do not adversely affect the carrying capacity of areas where base flood elevations have been determined, but a floodway has not been designated.

Significance after Mitigation

Less than significant

Impact 6.7-3 Redevelopment projects and development engendered by redevelopment could adversely affect groundwater quality, the rate and direction of groundwater flow, or interfere with groundwater recharge. This would be a less-than-significant impact.

General Plan build-out would increase the amount of impervious surfaces, and thereby reduce the ability for precipitation to percolate into the aquifer, thereby reducing groundwater recharge. This reduction is not considered a substantial concern because the aquifer recharge in this area is driven primarily by deep percolation from local waterways, such as the local creek system. In addition, the Amended Project Area is not identified as a primary groundwater recharge area. For these reasons, impacts on groundwater supplies are considered less than significant.
Mitigation
None required

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.7-4 Redevelopment projects and development engendered by redevelopment, in combination with other projects within the Amended Project Area, could expose people or structures to an increased risk from flooding. This would be a less-than-significant impact.

Redevelopment is intended to remove barriers to planned development within the Amended Project Area, consistent with the General Plan land use designations and zoning, including the Flood Hazard (-F) overlay zoning district. All new construction and major rehabilitation would be subject to the requirements of the Towns’ Flood Damage, Flood Control, and Drainage Ordinance, as amended over time. The Ordinance and Flood Hazard (-F) overlay zoning district together ensure that future projects within a flood hazard area are properly designed, permitted, and protected from future flooding. In addition, the Amendment would provide capital improvements assistance for improving storm drains, flood control improvements, curbs and gutters, and other drainage systems and capacity to reduce future flooding within the Amended Project Area. Therefore, the number of people and structures exposed to increased flood risks would not be cumulatively considerable, and the Amendment would have a less-than-significant effect on increased flood risks.

Mitigation
None required

Impact 6.7-5 Stormwater and operational runoff as a result of redevelopment projects, in combination with other projects within the Amended Project Area, would contribute to cumulative increases in discharge of urban pollutants to the Russian River watershed. This would be a less-than-significant impact.

Cumulative development in the Amended Project Area could include development of currently undeveloped land, thereby increasing the amount of impervious surfaces and would result in an associated increase in runoff. Runoff could carry increased levels of sediment (as a result of construction activities) and urban contaminants (post-construction) that could affect receiving water quality in the Russian River watershed. Cumulative increases in urban runoff as a result of development in the Town and in other areas of the Russian River watershed could be cumulatively considerable.

As noted above, the conservation and management of surface and groundwater resources is provided through the implementation of construction permits, drainage ordinances, and NPDES measures that will prevent contamination of local creeks. All development must be designed to prevent contamination in accordance with standards accepted by or imposed by the Town, EHD, and the NCRWQCB.
Measures include, but are not limited to:

- The requirement to connect to the Town's wastewater collection and treatment system
- Use of BMPs to control runoff from new development
- Requiring the preparation of erosion and sediment control plans
- The use of detention/retention basins to not only control erosion, but also to minimize the potential for flooding

The Amendment would further provide assistance for capital improvements to improve water quality and drainage. Therefore, the proposed Amendment would result in a less-than-significant contribution to cumulative water pollutants in the Russian River watershed.

**Mitigation**

None required
6.8 Noise

Windsor Redevelopment Project Proposed Fifth Amendment
INTRODUCTION

This Subchapter of the Environmental Impact Report (EIR) describes the existing noise environment of the Existing Project Area and Added Area (Amended Project Area) for the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). The potential of individual project development to increase noise levels significantly due to construction and operation of redevelopment-engendered development, and the noise effects of traffic and rail noise were considered. This Subchapter also presents a discussion of noise fundamentals, the existing noise environment in the project vicinity, and applicable federal, state, and local noise regulations.

No comments pertaining to noise were received during circulation of the Notice of Preparation (NOP) for the proposed Amendment.

ENVIRONMENTAL SETTING

FUNDAMENTALS OF ENVIRONMENTAL SOUND AND NOISE

Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing.

Environmental noise is typically measured in A-weighted decibels (dBA). A dBA is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels. In general, A-weighting of environmental sound consists of evaluating all of the frequencies of a sound, taking into account the fact that human hearing is less sensitive at low frequencies and extremely high frequencies than in the frequency mid-range (much like a bell shaped curve, otherwise referred to as an A-weighted curve). In practice, the level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Environmental noise within an urbanized area typically fluctuates over time. Table 6.8-1 lists several examples of the noise levels associated with common situations. This time-varying characteristic of environmental noise is described using statistical noise descriptors.
**Table 6.8-1**

**Typical Noise Levels**

<table>
<thead>
<tr>
<th>Common Outdoor Activities</th>
<th>Noise Level (dBA)</th>
<th>Common Indoor Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jet Fly-over at 300 m (1,000 ft)</td>
<td>--110--</td>
<td>Rock Band</td>
</tr>
<tr>
<td>Gas Lawn Mower at 1 m (3 ft)</td>
<td>--100--</td>
<td></td>
</tr>
<tr>
<td>Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)</td>
<td>--90--</td>
<td></td>
</tr>
<tr>
<td>Noisy Urban Area, Daytime</td>
<td>--80--</td>
<td>Food Blender at 1 m (3 ft)</td>
</tr>
<tr>
<td>Gas Lawn Mower, 30 m (100 ft)</td>
<td>--70--</td>
<td>Garbage Disposal at 1 m (3 ft)</td>
</tr>
<tr>
<td>Commercial Area</td>
<td>--60--</td>
<td>Vacuum Cleaner at 3 m (10 ft)</td>
</tr>
<tr>
<td>Heavy Traffic at 90 m (300 ft)</td>
<td>--50--</td>
<td>Large Business Office</td>
</tr>
<tr>
<td>Quiet Urban Daytime</td>
<td>--50--</td>
<td>Dishwasher in Next Room</td>
</tr>
<tr>
<td>Quiet Urban Nighttime</td>
<td>--40--</td>
<td>Theater, Large Conference Room (Background)</td>
</tr>
<tr>
<td>Quiet Suburban Nighttime</td>
<td>--30--</td>
<td>Library</td>
</tr>
<tr>
<td>Quiet Rural Nighttime</td>
<td>--20--</td>
<td>Bedroom at Night, Concert Hall (Background)</td>
</tr>
<tr>
<td></td>
<td>--10--</td>
<td>Broadcast/Recording Studio</td>
</tr>
<tr>
<td>Lowest Threshold of Human Hearing</td>
<td>--0--</td>
<td>Lowest Threshold of Human Hearing</td>
</tr>
</tbody>
</table>


Descriptors used include $L_{eq}$, $L_{dn}$, CNEL, $L_{50}$, and $L_{max}$, which are described below. These statistical noise descriptors are often used in noise policies and regulations in order to set limits on environmental noise.

$L_{eq}$  The average A-weighted noise level measured over a given period of time

$L_{dn}$  24-hour day and night noise measurement, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (penalizing nighttime noises). Noise between 10:00 PM and 7:00 AM is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL (Community Noise Equivalent Level): 24-hour day and night noise measurement which adds a 5 dBA penalty for the evening hours between 7:00 PM and 10:00 PM and a 10 dBA penalty for noise between 10:00 PM and 7:00 AM

$L_{50}$  The A-weighted noise level that is equaled or exceeded 50% of the stated time period

$L_{max}$  The A-weighted maximum noise level for a given period of time
EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, or dissatisfaction
- Interference with activities such as speech, sleep, or learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual’s past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted – the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:1

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 9 dBA per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE SOURCES

Significant noise sources in the Town of Windsor (Town) include traffic on major roadways and highways, railroad operations, and representative industrial activities. The most significant traffic noise within the Amended Project Area is generated by vehicular traffic along United States Highway 101 (US 101), Old Redwood Highway, Shiloh Road, and Windsor River Road. The Northwest Pacific Railroad (NWPRR) uses the track, which traverses the Existing Project Area, and forms the western boundary of a portion of the

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6.8 NOISE

Added Area. Distance from the nearest residences to the rail tracks varies from 30 feet to over 100 feet with the majority in the range of 60 to 80 feet.

The closest airport is the Sonoma County Airport located immediately south of the Town. The Amended Project Area is located outside the airport’s 55 CNEL contour.²

Transportation Noise

The primary transportation corridors in the Town currently exceed 60dB Ldn within 50 feet of the roadway centerline. In 1996, at the time the Town of Windsor General Plan (General Plan) EIR was written, ambient noise levels along Old Redwood Highway south of Arata Lane were measured at 64 CNEL at 50 feet from the center line of the roadway, with average daily traffic volumes (ADT) of 5,466. Ambient noise levels on Windsor Road near Windsor Road were measured at 64 CNEL at 50 feet from the center line of the roadway, with an ADT of 7,017. Recent noise measurements for the Sanderson project identified an ADT on Old Redwood Highway south of Arata Lane of 6,100 and 59.4 CNEL at 50 feet from the outside edge of the lane. Recent noise measurements for the Keiser Park EIR identified a 65 CNEL on Windsor River Road west of Windsor Road. Overall, the WGP EIR identified existing noise levels ranging from 64 to 69 CNEL along Old Redwood Highway, 65 CNEL along Shiloh Road, 60 CNEL along Hembree Lane, and 64 CNEL along Windsor River Road. The minor differences between the WGP EIR and recent measurements for local arterials indicate that the General Plan EIR measurements were very conservative and would not have changed significantly since 1995.

The Sonoma County General Plan 2020 (County General Plan 2020) Draft EIR (2008) recently analyzed noise along US 101 in Windsor. The projected distance from the US 101 center line to the existing 60 and 65 dB Ldn contours at Windsor River Road was 1078 feet and 501 feet respectively, and 1321 feet and 613 feet respectively at Shiloh Road. The existing predicted Ldn at 50 feet from the roadway centerline was 81.3 at Shiloh Road and 80.0 at Windsor River Road. Highway noise levels are projected to increase 1.2 dB Ldn at Shiloh Road and 2.1 dB Ldn at Windsor River Road at County General Plan 2020 build-out.

Railroads

The NWPRR freight service is being restored as of 2009 and the Sonoma Marin Area Rail Transit (SMART) passenger service (voter-tax approved and desired service) on the same rail line is due to resume passenger service by 2014.³ Railroad scheduling varies with seasonal demands and other economic factors, but the main line formerly averaged two trains per day several days per week. Through trains usually had one or two locomotives with 20 to 90 cars, depending upon shipping demands. Local trains are generally shorter. Preliminary operations planning calls for four northbound and four southbound trains per day, running five to six days a week. Freight service on the proposed SMART corridor would operate through Windsor from Cloverdale and the Ignacio Wye in Novato as it continues to and from points east of the Wye and north of Cloverdale.

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Noise levels from freight railroad operations were evaluated for the Sonoma County General Plan 2020 Noise Element based upon a worst case assumption of two trains during daytime hours and two trains at night. The CNEL from this level of operation would exceed 60 dBA within about 300 feet of the tracks. At distances of about 100 feet from the tracks, maximum noise levels from trains would range from 80 to 90 dBA.\footnote{Sonoma County Noise Element, (September 23, 2008), retrieved September 24, 2009 from http://www.sonoma-county.org/prmd/gp2020/adopted/noise.pdf. L\text{dn} contours for railroad operations are available at the Sonoma County Permit and Resource Management Department (PRMD).}

The EIR for the SMART project measured existing $L\text{dn}$ noise levels in Windsor as ranging from 49 $L\text{dn}$ at Eagle Drive at 13th Hole Drive to 58 $L\text{dn}$ at Bell Road, during the period without freight service. The EIR determined that except in the vicinity of grade crossings, where train horns are used, the noise exposure would not exceed 60 dBA $L\text{dn}$ at a distance greater than 25 feet from the tracks.

**Stationary Sources**

Existing land uses in the Existing Project Area are predominantly residential and commercial in nature. Many parcels in the Added Area are zoned industrial and heavy commercial, but most are auto and shipping oriented, or largely vacant, underutilized parcels. Service commercial/industrial uses, such as automotive repair facilities, typically accompany residential uses. The noise emissions of these types of uses are dependent on many factors, and are therefore, difficult to quantify. Nonetheless, noise generated by the intermittent use of impact wrenches, tire breakers, and other pneumatic tools contributes to the ambient noise environment of the Town. The existing industrial areas are largely buffered from other land use designations by the railroad right-of-way (ROW) and US 101.

There are also numerous park and school uses within the Town limits. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time, and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be much higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

**Sensitive Receptors**

Noise sensitive receptors are generally considered to be human activities on land uses that may be subject to the stress of significant interference from noise, such as libraries, hospitals, or passive recreational areas. Land uses in the Amended Project Area associated with sensitive receptors include residences, schools, assisted care homes, and passive recreation areas. The Amended Project Area also includes areas of older single-family residences intermixed with existing industrial and/or commercial uses, or adjacent to the highway, which are already being adversely affected by traffic and stationary noise under the current conditions. Housing along major roadways is currently exposed to traffic noise levels which exceed the Town’s standards for residential exposure.
REGULATORY SETTING

STATE

State of California Noise Insulation Standards

The State Building Code, Title 24, Part 2 (updated August 1, 2008) of the California Code of Regulations (CCR) establishes uniform minimum noise insulation performance standards to protect persons within new buildings – which house people, including hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

LOCAL

Town of Windsor General Plan

The Windsor General Plan Public Health and Safety (PHS) Chapter includes the following noise policies applicable to the Amendment.

Policies

PHS-D.1 Encourage new development to be planned and designed to minimize noise impacts on neighboring noise sensitive areas and to minimize noise interference from outside noise sources.

PHS-D.1.1 New development should be required to meet acceptable exterior noise level standards as established in the noise and land use compatibility guidelines contained in Figure 7-4 of the General Plan (included as Figure 6.8-1, below). For residential areas, these exterior noise guidelines apply to backyards; exceptions may be allowed for front yards where overriding design concerns are identified.

PHS-D.1.5 The Town should encourage new development to identify alternatives to the use of sound walls to attenuate noise impacts. Other techniques that would be viewed more favorably by the Town include modifications to site planning such as incorporating setbacks, revisions to the architectural layout such as changing building orientation providing noise attenuation for portions of outdoor yards, and construction modifications. In the event that sound walls are the only practicable alternative, such walls should be designed to be as visually pleasing as possible, incorporating landscaping, variations in color and patterns, and/or changes in texture or building materials.

PHS-D.2 Control and abate those activities that exceed desirable sound levels.
## 6.8 Noise

### Figure 6.8-1

**Noise Exposure Standards**

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Community Noise Exposure (L_{dn} or CNEL, dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55</td>
</tr>
<tr>
<td><strong>RESIDENTIAL</strong></td>
<td></td>
</tr>
<tr>
<td>Low-Density Single-Family, Duplex, Mobile Homes</td>
<td></td>
</tr>
<tr>
<td>Multifamily</td>
<td></td>
</tr>
<tr>
<td><strong>TRANSIENT LODGING</strong></td>
<td></td>
</tr>
<tr>
<td>Motels, Hotels</td>
<td></td>
</tr>
<tr>
<td><strong>SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AUDITORIUMS, CONCERT HALLS, AMITHITEATERS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPORTS AREA, OUTDOOR SPECTATOR SPORTS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PLAYGROUNDS, NEIGHBORHOOD PARKS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETARIES</strong></td>
<td></td>
</tr>
<tr>
<td><strong>OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INDUSTRIAL, MANUFACTURING, UTILITIES, AGRICULTURE</strong></td>
<td></td>
</tr>
</tbody>
</table>

**NORMALLY ACCEPTABLE**
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise requirements.

**NORMALLY UNACCEPTABLE**
New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.

**CONDITIONALLY ACCEPTABLE**
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

**CLEARLY UNACCEPTABLE**
New construction or development clearly should not be undertaken.

Source: Town of Windsor General Plan Public Health and Safety Element, Figure 7-4, 1996. (Revised 2005).
PHS-D.2.1 The Town should regulate non-vehicular noise sources that are not preempted by state and federal regulations, to minimize disturbances to adjoining uses.

PHS-D.2.5 The Town should seek to restrict construction in a manner that allows for efficient construction mobilization and activities, while also protecting the noise environment of noise sensitive land uses.

Town of Windsor Zoning Ordinance

Section 27.20.030.F(1) of the Windsor Zoning Ordinance specifies maximum allowable noise standards, as shown in Table 6.8-2. Additionally, the Zoning Ordinance Chapter 27.20 restricts the hours that construction work can take place to Monday to Friday from 7:00 AM to 7:00 PM and on Saturdays from 8:00 AM to 7:00 PM. Construction activities on Sundays between 9:00 AM and 5:00 PM may only occur with prior authorization by the Planning Commission or Town Council.

Section 27.34.110 (F) - Mixed-Use Development specifies that all residential units within mixed-use development shall be designed to be sound attenuated against present and future project noise. New projects, additions to existing projects, or new nonresidential uses in existing projects must provide an acoustical analysis report, by an acoustical engineer, describing the acoustical design features of the structure required to satisfy the exterior and interior noise standards.

Chapter 27.20 General Property Development and Use Standards apply to all proposed development and new land uses, and must be considered in combination with the standards for each zoning district in Article 2 (Zoning Districts and Allowable Land Uses). If there is a conflict, the standards specific to the zoning district overrides these general standards. This section specifies that no use, activity, or process shall exceed the maximum allowable noise standards identified in Table 6.8-2.

<table>
<thead>
<tr>
<th>Type of Land Use</th>
<th>Maximum Allowable Noise Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time Interval</td>
</tr>
<tr>
<td>Single- or multi-family residential</td>
<td>10 PM to 7 AM</td>
</tr>
<tr>
<td></td>
<td>7 AM to 10 PM</td>
</tr>
<tr>
<td>Commercial</td>
<td>10 PM to 7 AM</td>
</tr>
<tr>
<td></td>
<td>7 AM to 10 PM</td>
</tr>
<tr>
<td>Industrial or manufacturing</td>
<td>Any time</td>
</tr>
<tr>
<td>Public parks, public open space, and</td>
<td>10 PM to 7 AM</td>
</tr>
<tr>
<td>Civic Center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 AM to 10 PM</td>
</tr>
</tbody>
</table>

Source: Windsor Zoning Ordinance, Section 27.20.030 (F).
ENVIRONMENTAL IMPACTS

METHODOLOGY

To assess the significance of potential noise impacts, both the absolute level of anticipated noise levels and change in noise levels associated with implementation of the Amendment were assessed. For noise sources such as surface traffic, a 3 dBA change in noise is generally perceived as being a barely perceptible change, a 5 dBA change is considered to be a distinctly perceptible change, and a 10 dBA change is perceived as a doubling of sound level.

Consideration in defining impact significance is based on the degradation of the existing noise environment. Ambient noise degradation is considered generally less than significant if no noise-sensitive sites are located in the area, or if increases in community noise level with implementation of the project are expected to be 3 dBA or less at noise-sensitive locations, and the proposed project will not result in violations of local ordinances or standards. Noise-sensitive sites include residences, motels, public meeting rooms, auditoriums, schools, churches, libraries, hospitals, and other areas where low noise levels are essential.

The significance of a change in noise levels is somewhat subjective. However, both the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) have published general criteria, applicable to roadway noise that can also be used to define noise impacts associated with other community noise increases.

In general, if the increase in noise exposure level is greater than 3 dBA, the significance of impact will depend on the ambient noise level and the presence of noise-sensitive uses. Noise impacts can be considered potentially significant if increases in noise exposure levels are expected to be greater than 5 dBA with implementation of the Amendment. Noise impacts can be considered generally significant if a project causes noise standards or ordinances to be exceeded, or increases community noise levels by 6 to 10 dBA in urban areas, or increases noise levels by 10 dBA or more in rural areas.

THRESHOLDS OF SIGNIFICANCE

The California Environmental Quality Act (CEQA) Guidelines define a significant adverse impact on the environment as an impact that would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 6.8-1 Redevelopment engendered development and infrastructure projects could result in construction noise at sensitive receptors. This would be a potentially significant impact.

Construction activities related to public and private projects undertaken as a result of the Amendment could result in an increase in ambient noise levels during construction. This would be a short-term significant impact.

Preliminary ground work activities would involve excavation, grading, earth movement, stockpiling, and haul-vehicle travel. Construction activities such as foundation-laying, road building, building construction, and finishing operations would generate noise at construction sites. Construction equipment would also generate vehicular noise both on and off a site. Construction-related material haul would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. Construction equipment and activities would likely have more of an intrusive and disturbing effect on nearby sensitive receptors than actually raise time-averaged noise levels. Typical noise levels associated with construction equipment is shown in Table 6.8-3.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Typical Equipment Level (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Compressor</td>
<td>81</td>
</tr>
<tr>
<td>Backhoe</td>
<td>85</td>
</tr>
<tr>
<td>Concrete Pump</td>
<td>82</td>
</tr>
<tr>
<td>Concrete Breaker</td>
<td>82</td>
</tr>
<tr>
<td>Truck Crane</td>
<td>88</td>
</tr>
<tr>
<td>Dozer</td>
<td>87</td>
</tr>
<tr>
<td>Generator</td>
<td>78</td>
</tr>
<tr>
<td>Loader</td>
<td>84</td>
</tr>
<tr>
<td>Paver</td>
<td>88</td>
</tr>
<tr>
<td>Pneumatic Tools</td>
<td>85</td>
</tr>
<tr>
<td>Water Pump</td>
<td>76</td>
</tr>
<tr>
<td>Power Hand Saw</td>
<td>78</td>
</tr>
<tr>
<td>Shovel</td>
<td>82</td>
</tr>
<tr>
<td>Trucks</td>
<td>88</td>
</tr>
<tr>
<td>Pile Driver</td>
<td>90</td>
</tr>
</tbody>
</table>

6.8 Noise

Assuming a maximum noise level of 88 dBA $L_{eq}$ (no pile driving or rock drilling is anticipated in this Amended Project Area) at about 50 feet from the source for standard construction equipment, and a noise attenuation of about 6 dBA for every doubling of the distance, noise levels from construction activities would drop to about 60 dBA $L_{eq}$ (the maximum normally acceptable noise level in residential areas) at about 1,500 feet from the source. This worst-case estimate assumes that sound waves travel undisturbed from the source to the receptor over ground that has poor sound absorptive properties; local terrain characteristics, such as earth berms that provide a shielding effect by blocking the line of sight to noise sources, and soft vegetation-covered earth with good sound absorptive tendencies, would reduce noise propagation. Under a worst-case scenario, noise-sensitive land uses or activities within about 1,500 feet of construction sites within the Amended Project Area could be exposed to noise levels above the recommended standards during the construction period.

The construction schedules for individual projects carried out in furtherance of the Amendment would vary from project to project. The duration of construction noise effects and the impacts would differ for each type of construction (new building construction, rehabilitation, public infrastructure, etc.) and project location. Noise from construction activities in the Amended Project Area would have the potential to raise ambient noise levels above recommended standards and to have an intrusive and disturbing noise effect at nearby sensitive receptor locations.

Construction noise would be short-term for the duration of the construction period, and is regulated by Zoning Ordinance section 27.20.030 (F)(4). The Town has adopted performance standards that specify the following time periods for construction activities:

- Monday through Friday: 7:00 AM – 7:00 PM
- Saturday: 8:00 AM – 7:00 PM
- Sunday: Construction activities may be allowed by the Commission or Council only between 9 AM and 5 PM

Although the restriction of construction to specific daylight hours minimizes the annoyance from temporary noise impacts resulting from construction activities, construction activities could temporarily and intermittently increase noise levels at nearby sensitive receptor locations. This would be a potentially significant impact.

Mitigation

Future redevelopment construction activities within 1,500 feet of residential units or other sensitive receptors, as determined by the Planning Director, shall implement the following measures for the duration of the construction period:

6.8-1a Properly muffle and maintain all construction equipment powered by internal combustion engines.

6.8-1b Prohibit unnecessary idling of internal combustion engines.

6.8-1c Locate all stationary noise-generating construction equipment, such as air compressors, as far as practical from existing nearby residences and other noise sensitive land uses. Such equipment shall also be acoustically shielded.

6.8-1d Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order.
6.8 NOISE

6.8-1e A noise disturbance coordinator responsible for responding to any local complaints about construction noise shall be designated. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

Significance after Mitigation

Less than significant

Impact 6.8-2 Redevelopment engendered development could result in increased ambient noise levels at noise-sensitive land uses. This would be a less-than-significant impact.

Implementation of the Amendment will eliminate barriers to development in the Amended Project Area by providing funding for infrastructure improvements and development assistance. This would allow development to occur consistent with the General Plan. By removing existing barriers to development, the Amendment will potentially stimulate increased population and employment growth in the Amended Project Area to the levels projected for General Plan build-out, as currently specified in the updated Housing Element. The Amendment would help remove barriers to development of residential, commercial, and industrial infill parcels, which could result in increased stationary noise at commercial and industrial sites, as well as increased traffic noise along major roadways and local streets.

Infill development would be consistent with existing General Plan land use designations and policies, and is therefore anticipated and addressed by existing plans, policies, and ordinances. The increase in vehicle trips along a particular roadway as the General Plan land use densities are reached would depend on the number of additional trips generated (which would depend on the types of land uses developed), and the distribution of these trips on the area roadway network (which would depend on future land use patterns).

An analysis of vehicular traffic can be used to determine whether ambient noise levels would increase under the General Plan. Generally, a tripling of ADT would result in an ambient noise level increase of 4.5 to 5 dB. Existing and future traffic levels were recently analyzed for the Town’s Traffic Fee Update (November 2008). Traffic count data was collected and current operation during the morning and evening peak periods evaluated for 33 intersections. 14 of these intersections are located within the Amended Project Area. Updated land use estimates for all under-developed and vacant land based on the Housing Element Update (2004) was used to estimate trips that the potential future development will add to the street network. This fairly represents the potential build-out that could occur over the life of the proposed Amendment.

The ratio of change in intersection traffic from current to future conditions as analyzed in the Traffic Fee Update was used as an indicator of the change in traffic volumes on Amended Project Area streets. Out of the 14 intersections in the Amended Project Area, only Old Redwood Highway and the US 101 southbound ramp would experience a tripling of traffic volumes in the PM peak hour. The intersections along Old Redwood Highway north of

5 Windsor General Plan EIR – Noise, pg. 3.12-4
Arata Lane would otherwise experience more than a doubling of traffic, but less than tripling during all peak hours. Except for an existing mobile home park at the intersection of Old Redwood Highway and Arata Lane, there is are no residential uses or other sensitive receptors in this area. No other intersections in the Amended Project Area would experience a doubling of traffic under build-out conditions, and therefore no sensitive receptors would be exposed to increased noise levels over 5 dBA.

Increases in the number of stationary noise sources in the Amended Project Area as barriers to infill development are removed would produce noise levels primarily during the day and evening hours and less frequently at night as perceived at the closest noise-sensitive land uses. Noise typically associated with residential land uses includes adult and children voices and noise generated by lawn maintenance equipment. Noise levels generated by residential land uses typically average less than 50 dBA at 10 feet and would not be anticipated to result in a noticeable increase (e.g., 3 dBA or greater) in ambient noise levels. Operational noise associated with non-residential land uses – including operation of building mechanical equipment, material loading and unloading activities, pneumatic equipment, and processing equipment – could generate high noise levels depending on the type of equipment and when, how often, and for what duration they are used. Such stationary noise is governed by the Zoning Ordinance regulations.

The Amendment would remove barriers to industrial and commercial development within areas zoned for such uses. General Plan policies require specific development projects be analyzed when proposed, in accordance with CEQA and the Zoning Ordinance, to determine if projected noise levels at nearby receptors would comply with the Town's noise control standards. Mitigation measures will be required to reduce projected interior and exterior noise levels to within acceptable levels. Mitigation could include sound walls, dual-pane noise-rated windows, use of mechanical air systems, and use of other building materials that would feasibly reduce interior noise levels to acceptable levels. Compliance with the Town's noise standards and implementation of any additional project-specific mitigation measures for the control of stationary source noise in compliance with CEQA would reduce future stationary source noise impacts to less-than-significant levels.

The Zoning Ordinance calls for the analysis of specific projects to determine whether outdoor and indoor levels would comply with the noise standards. Therefore, compliance with the Zoning Ordinance would ensure the Amendment would result in a less-than-significant noise impact on existing and future uses in the Amended Project Area.

**Mitigation**

None required
Cumulative Impacts and Mitigation Measures

Impact 6.8-3 Redevelopment engendered development could result in an increase in cumulative community noise impacts. This would be a less-than-significant cumulative impact.

The contribution of redevelopment activities and General Plan development in furtherance of the Amendment to cumulative community noise conditions would be secondary and incremental. Only a small percentage of the additional noise would be caused by traffic of projects engendered by the Amendment, and even build-out was determined to result in less than a 5 dBA noise increase along Amended Project Area roadways. Any new stationary sources must be mitigated per General Plan and Zoning Ordinance policies, and zoning provides logical buffers between new residential and industrial land uses. The Amendment must be consistent with the General Plan per California Community Redevelopment Law (CRL), and would not result in violations of local ordinances or standards. Cumulative community noise impacts are considered less than significant.

Mitigation

None required
CHAPTER 6
ENVIRONMENTAL ANALYSIS
INTRODUCTION

This Subchapter of the Environmental Impact Report (EIR) addresses public services and utilities for the Existing Project Area and Added Area (Amended Project Area) for the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). The issues addressed in this Public Services and Utilities section includes:

- Public Safety (Fire, Police)
- Public schools
- Solid waste disposal
- Wastewater
- Stormwater and drainage
- Water service
- Parks, recreation, and cultural

The settings for each topic are discussed first, followed by the analysis of potential impacts and mitigation measures. Information for this section was primarily drawn from the Town of Windsor General Plan (General Plan), the Urban Water Management Plan (UWMP), the Preliminary Report on the 5th Amendment to the Redevelopment Plan (Preliminary Report, October 2009), and the Windsor General Plan Draft EIR (GP EIR) and Background Reports.

Comments were received on the Notice of Preparation (NOP) from the Windsor Fire Protection District (Fire District) regarding a concern about loss of tax income. This is a socio-economic issue that is not addressed by CEQA, and will be addressed by the Town directly. The EIR only considers the potential need for construction of new public facilities as a result of the proposed Amendment.

ENVIRONMENTAL AND REGULATORY SETTING

PUBLIC SAFETY

Fire Services

The Fire District, established in 1986, provides fire protection services to the Town. The Fire District, a combination of paid and unpaid (volunteer) staff, responds to an estimated 2,000 emergency calls each year. Fire District also provides extensive public education and fire/life safety services.

There are two stations in the Fire District – Station 1/Headquarters is staffed 24 hours a day, 7 days a week, located at 8200 Old Redwood Highway. Station 2, located at 8600 Windsor Road, opened September 17, 2009, and is also staffed 24 hours a day, 7 days a week.

The Fire District currently has both paid employees and volunteers, with captains and fire engineers on duty 24 hours a day, 7 days a week. All fire fighters are certified Emergency Medical Technicians (EMTs). The District currently has mutual aid agreement with surrounding fire protection districts, including the Rincon Valley Fire Protection District, Forestville Fire Protection District, Healdsburg Fire Department, and Geyserville Fire Protection District.

Average response time within the District is currently approximately 3 to 4 minutes. Because it is not funded directly by the municipalities in which it operates, the District is not
required to meet specific response time standards. However, the range in which it operates is comparable to standards set by most fire districts.\textsuperscript{1,2}

**Police Services**

The Windsor Police Department (WPD) provides police protection services in the Town. The WPD maintains one police station, located at 929 Old Redwood Highway, and is staffed by Sonoma County (County) Sheriff Department employees through a negotiated contract between the County and the Town. The WPD employs 22 full time employees, including:

- The Chief
- 2 Sergeants
- 13 officers
- 1 K9 officer
- 1 traffic officer
- 1 school resource officer
- 1 community services officer
- 2 civilian administrative staff

As of 2006, WPD’s response time to priority one calls was approximately 5 minutes 51 seconds. This, however, included the time it takes the call taker to accept the call and for the dispatcher to dispatch a deputy. The actual travel time for a deputy to get on scene of an emergency is less than 4 minutes, well within the target time.\textsuperscript{3,4}

**Crime in the Existing Project Area**

The Preliminary Report (2009) analyzed Part I\textsuperscript{5} crime statistics for the Existing Project Area for the past three years (2006-2008) compared to the Town and County for the same period. The Added Area was not included in this analysis because its population is too small to create an accurate assessment. The crime rate is one and half times higher in the Existing Project Area than the Town overall. In terms of violent crimes, residents in the Existing Project Area were more than three times as likely to be victims of assault, robbery, and auto theft as those persons living in the balance of the Town. The Existing Project Area represents 10 percent of the Town area (468 of 4,656 acres) and accounted for 22 percent of the total crimes, or more than twice as many crimes per acre than the Town as whole.

**Town of Windsor General Plan**

The following General Plan Policies are applicable to the proposed Amendment:

**Policies**

E.3.22 Law enforcement operations should be expanded as the Town’s population grows. The Town should establish benchmark standards for evaluating the quality of law enforcement services on an annual basis. The standards should consider current satisfaction with the level of service, response times, numbers of calls for service, types of calls for service, and size and boundaries of patrol beats.

E.3.23 The Town should continue its efforts to educate the public about crime deterrence through programs like the Neighborhood Watch Program within

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\textsuperscript{5} Defined by the FBI, Part I crimes include homicide, rape, robbery, aggravated assault, burglary, larceny (theft), motor vehicle theft, and arson.
residential areas, the Business Watch Program within commercial and industrial areas, and the Park Watch Program within the community and regional parks.

E.3.24 To minimize opportunities for crimes to occur, law enforcement personnel should be routinely involved in the review of new development applications. In particular, the Town should review development applications with an intent to incorporate concepts of defensible space into the project. These concepts stress the importance of physical design and surveillance as techniques to deter crime. For example, developers should design open spaces, parking lots, paths, play areas, and other public spaces such that they can be under continuous surveillance by residents and users.

E.3.25 The Town should coordinate with the Windsor Fire Protection District and with the Rincon Valley Fire Protection District regarding the provision of fire suppression services. The Town should seek to maintain the existing Insurance Services Office (ISO) rating of 3.

E.3.26 A new fire station should be sited on the east side of U.S. 101 with access to a Crosstown Street and with a goal of maintaining, in combination with the existing station, a five-minute response time throughout the proposed Sphere of Influence. [Completed as of September 2009].

E.3.27 To minimize fire hazards, firefighting personnel should be routinely involved in the review of new development applications. In particular, the Town should review development applications for the adequacy of emergency access, street widths and turning radii, fire hydrant locations, fireflow requirements, and water storage and pressure needs.

E.3.28 The Town should require new development outside the desired five-minute response time to provide onsite fire suppression measures and/or management of surrounding vegetation to provide minimum clearance between the structure and the vegetation. These measures must satisfy the fire districts prior to Town approval of the development application.

E.3.29 Critical facilities such as fire, police, and emergency response facilities, i.e., those whose continued operation is essential during an emergency, should not be sited in areas subject to ground rupture from earthquakes, severe groundshaking, and flooding during a 100-year storm, unless there are no practicable alternative sites.

E.3.30 The Town should formulate a coordinated approach to paramedic-level emergency using firefighters and paramedics.

PUBLIC SCHOOLS

The Windsor Unified School District (WUSD) operates the public schools serving the Amended Project Area. WUSD manages seven schools: three elementary schools (Matte Washburn – K-1; Windsor – 2-3; Brooks – 4-5), one middle school (Windsor – 6-9), one high school (Windsor – 10-12), and two charter schools (Cali Calmecac – K-8; Windsor Oaks Academy – a continuation school), with a total enrollment of approximately 5,450 students.

According to WUSD (Herrington, 2009), for the 2009-2010 school year, WUSD is experiencing incremental growth in its student population and is still exceeding the WUSD’s growth projection model. WUSD experienced close to 2% growth from last year, and the current enrollment is ahead of all projection models. The 5-year projection estimates 5,931 students by the year 2011.
WUSD currently has 240 classrooms; 58% or 140 of these classrooms are temporary portable classrooms. Under Proposition 1D, WUSD is now eligible for $17 million in state matching funds for growth (new classrooms), modernization (Cali Calmecac Language Academy and Windsor Creek), and a Career Technical Education Facility (Windsor High School). By state and local standards, 6 of Windsor’s 7 school campuses are over capacity. Many of the schools’ portable classrooms exceed their 20-year life span, and are due for replacement.

The WUSD Governing Board of Trustees submitted to the voters a $50 million school construction bond on February 5, 2008. The successful passage of the bond now allows the WUSD to address its growth problems over the next 10 to 15 years. However, the pending Pomo Indian land trust is not calculated into any of these assumptions. Approval of the transfer of land to reservation status could result in a loss of income and an increase in demand for services without local bond obligations.

The WUSD has determined that if the Town continues to approve residential development, an additional school site located within the District’s boundaries will need to be provided to accommodate incoming students. For an elementary school, 10 acres is required; for a secondary campus, 15-30 acres would be necessary.

As a part of the Amendment, the Redevelopment Agency of the Town of Windsor (Agency) is required to provide the Department of Finance (DOF) with a report which includes a projection by each school district, county office of education, and community college district within the Added Area of any change in the need for school facilities within the Added Area for the duration of the Added Area. The current number of dwelling units (du) in the proposed Added Area is estimated to be 98, based on a visual survey and aerial photographs of the area. The current number of school age students (K-12) is estimated to be 45 students within the Added Area, as calculated with the District’s student yield factor of 0.4601 students per du.6

Elementary school attendance is not mandated by geographical boundaries. Therefore, elementary school children in the area have an equal likelihood to attend any of the four elementary schools within the District’s jurisdiction.7,8

**Town of Windsor General Plan**

The following General Plan Policies are applicable to the proposed Amendment:

**Policies**

E.3.16 Residential development shall be served by adequate school facilities. For any proposed development project, if the school district reports that any school serving that project will be unable to accommodate students from the development project, as shown on a School Facility Plan approved by the school district’s governing board and filed with the Town Clerk, then the project shall not be considered for approval by the Planning Commission until a report prepared by the Town Director of Planning is presented to the Commission and Town Council disclosing potential impacts on the school district and future availability of schools and school sites, including financing ability, to serve the project.

E.3.17 The Town and the Windsor Unified School District should confer and jointly work to assure the adequacy of sites for schools.

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6 Student Growth Projections, Keyser Marston, August 26, 2009.
E.3.18 Siting for future elementary and middle schools should generally adhere to the State guidelines or the following, whichever is more restrictive:

a) Approximately 10 acres for elementary schools and 20 acres for middle schools

b) Centrally located within or adjacent to residential neighborhoods and within the projected attendance area to minimize walking distances and the number of students who would have to cross a major street to reach the school

c) Located with direct access to an existing or planned Crosstown Street, as well as direct or indirect access to a second road with approximately 50 percent of the perimeter adjacent to a public road whenever possible

d) Conveniently and safely accessible by pedestrians and bicyclists

e) Sited on relatively flat land, preferably less than 2 percent slope, and involve minimal grading

f) Outside of the 100-year floodplain

g) Beyond 400 feet of high voltage power transmission lines

h) In a noise contour of less than 65 CNEL (refers to Community Noise Equivalent Level, a noise measurement, that is defined and mapped in the Noise section of Chapter 7 of this [General Plan], which normally would include areas not under any runway approach surface, and located more than one-half mile from any portion of a usable runway

E.3.19 A future high school should be designed in accordance with the following guidelines, in addition to those identified above in Policy E.3.18e through h:

a) Encompass an approximately 40-acre site

b) Located directly on a Crosstown Street as well as directly or indirectly on a secondary road with approximately 50 percent of the perimeter adjacent to a public road whenever possible

c) In residential or commercial areas depending on access, noise, safety and other considerations

E.3.20 The school district and the Town should give priority to school sites that have the potential for acquisition and joint development for schools and parks.

Implementation Programs

E.2 Master Service Plans. School, fire protection, and stormwater drainage services are provided to Windsor by special districts and other governmental agencies. The Town shall maintain ongoing coordination with these entities to assure that they can plan for the proper level and quality of service for Windsor residents. At the same time, the Town shall amend its own water and wastewater plans to be consistent with the location, intensity, amount, and rate of growth assumed by this General Plan. (Planning, Public Works, Engineering, Windsor Unified School District, Windsor Fire Protection District, Rincon Valley Fire Protection District, Sonoma County Water Agency)

E.9 School District Facility Planning. The Town shall continue to forward all development proposals to the school district for review with regard to school capacity and potential school sites. For any proposed development project, if the school district reports that any school serving that project will be unable to accommodate students from the development project, as shown on a School
Facility Plan approved by the school district’s governing board and filed with the Town Clerk, then the project shall not be considered for approval by the Planning Commission until a report prepared by the Town Director of Planning is presented to the Commission and Town Council disclosing potential impacts on the school district and future availability of schools and school sites, including financing ability, to serve the project. (Planning)

E.10 **School Sites.** The Town shall refer all development applications for projects greater than 15 acres in size to the school district for consideration of appropriate school sites. If the school district determines that portions of the project area are suitable for a school site, the Town shall support the district’s efforts to secure the area for a school. The Town shall require that school sites be rezoned for Public Facility. Such rezonings shall not be approved until the property owner/developer and the school district have entered into an agreement over future use of the site as a school. (Planning)

**SOLID WASTE DISPOSAL**

Solid waste services in the Amended Project Area are contracted by the Town to Windsor Refuse & Recycling, Inc. (WRRI). WRRI provides solid waste services within the Town, including residential recyclables and green waste, commercial recyclables, and street sweeping of all public streets.

Solid waste from residential, commercial, and industrial customers is taken to the Healdsburg Transfer Station, located at 166 Alexander Valley Road in Healdsburg, the County. Once at the transfer station, the solid waste is sorted and hauled to one of three landfills: The Potrero Hills Landfill in Solano County (anticipated to be in operation until approximately 2030), the Redwood Sanitary Landfill in Marin County (anticipated to be in operation until approximately 2039), or the Keller Canyon Landfill in Contra Costa County (anticipated to be in operation until approximately 2030). All of these landfills operate within their permitted capacities.

The Sonoma County Waste Management Agency (SCWMA), formed in 1992, is the joint powers authority of the nine cities and the County and is responsible for implementing the regional waste diversion programs in the County as required by Assembly Bill (AB) 939. AB 939 states that all cities must divert 50% of their solid waste from landfills by December 31, 2000. The diversion rate for the SCWMA, as of 2006, was 64%.9

SCWMA manages various residential and commercial recycling, hazardous waste, composting and green building programs throughout the County. SCWMA utilizes a number of transfer stations for sorting the waste that is collected, including the Annapolis Transfer Station, Healdsburg Transfer Station, Guerneville Transfer Station, and Sonoma Transfer Station, all of which are located within the County. From any of these stations, the waste that cannot be diverted is typically hauled to the Central Disposal Landfill, which is currently anticipated to be in operation until 2014.10,11

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Town of Windsor General Plan

Objectives
E.4 Develop minimum acceptable standards for the provision of essential utilities and deliver these services in a cost-efficient manner to reduce the costs of service delivery.

Policies
E.4.11 The Town shall continue to improve its solid waste management system through emphasis on waste prevention (source reduction), reuse, recycling, composting, and disposal. Opportunities to accomplish this policy shall consider:
   a) Providing information and assistance to businesses and the public
   b) Providing convenient drop-off or curbside collection of recyclables
   c) Providing convenient drop-off or curbside collection of yard waste
   d) Requiring all Town departments to develop materials acquisition and handling practices that reduce the amount of waste generated in daily operations
   e) Requiring all projects, except single family dwellings, to provide sufficient and accessible space for the storage and collection of recyclable materials separate from, and in addition to, space for refuse storage and collection

E.4.12 The Town shall eliminate prohibited wastes, including household hazardous waste, from the municipal solid waste stream.

WASTEWATER

The Town’s Public Works Department, Operations and Maintenance Division is responsible for wastewater collection and recycled water systems in the Amended Project Area. The Water Reclamation Division is responsible for the treatment, storage, and disposal of wastewater. The Town has seven State certified Wastewater Operators who are charged with daily plant operations, wastewater quality, and maintenance of the Windsor Wastewater Treatment, Reclamation, and Disposal Facility (WWTRDF). The WWTRDF has a design capacity of 2.25 million gallons per day (mgd) average dry weather flow, and 7.2 mgd peak weekly wet weather flow. Treated and ultra violet (UV) disinfected effluent is reclaimed on Town-owned and private agricultural and urban landscapes; the Town disposes of approximately 300 million gallons through such land discharge. The approximately 300 million gallons of advanced treated effluent that is not reclaimed is dechlorinated and discharged from the effluent storage pond system to Mark West Creek during the allowed discharge period from October 1 to May 14, as allowed under the Town’s National Pollutant Discharge Elimination System (NPDES) permit. Mark West Creek is tributary to the Russian River, and is located southwest of the Amended Project Area.12

95% of the sanitary sewer generated in the Town drains by gravity directly to the WWTRDF. The remaining 5% that does not drain by gravity arrives to the plant via two small capacity public lift stations. The treatment plant receives sanitary sewer by way of a 15-inch trunk sewer from the northwest side of Windsor and by way of a 20-inch and a 42-inch trunk sewers from the east side of Windsor.

The current rated capacity of the treatment, storage, and discharge system is 1.6 mgd. The Town of Windsor Water Reclamation Master Plan for Treatment, Storage and Disposal

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12 Town of Windsor, Sonoma County, NPDES Permit and Master Reclamation Permit for Wastewater Treatment, Reclamation and Disposal Facility, WDID No.1 B0370SON. May 15, 2007.
(Master Plan) describes the various projects and programs needed to meet the effective recycled water storage and discharge needs of the Town at its build-out under the General Plan. Depending on the Town's actual rate of growth, the Town estimated in 2007 that approximately 40 million gallons of additional storage (or equivalent operational changes) would be required within the upcoming NPDES permit term and that an additional 75 million gallons would be required by 2015, based on population projections prior to the economic downturn. On October 15, 2008, the Windsor Town Council approved construction of a recycled water storage facility located on a Town-owned 168-acre parcel near the intersection of Eastside Road and Trenton-Healdsburg Road. The purpose of the Eastside Road Storage Facility (ERSF) is to provide additional recycled water storage to meet current and future operational requirements of the Town’s recycled water system.  

On October 15, 2008, the Windsor Town Council approved construction of a recycled water storage facility located on a Town-owned 168-acre parcel near the intersection of Eastside Road and Trenton-Healdsburg Road. The purpose of the Eastside Road Storage Facility (ERSF) is to provide additional recycled water storage to meet current and future operational requirements of the Town’s recycled water system.  

On November 5, 2008, the Town Council decided to move forward with the Windsor Geysers Recharge Pipeline Connection Project (Geysers Project) and has opted to construct the ERSF later. The Geysers Project consists of a pump station and connection pipeline to deliver recycled water to the City of Santa Rosa’s Geysers Pipeline to substitute for Santa Rosa recycled water already committed for reuse at the steam field. This facility is scheduled for operation by mid-2011. Also, as an interim measure ahead of full operation of the Geysers Project, the Town has entered into an agreement with SCWA for SCWA to reserve 40 million gallons of their existing recycled water storage for the Town’s use from 2009 through the year 2013.

Town of Windsor General Plan

Objectives

E.4 Develop minimum acceptable standards for the provision of essential utilities and deliver these services in a cost-efficient manner to reduce the costs of service delivery.

Policies

E.4.6 The Town shall modify the Master Plan for Wastewater Treatment, Storage & Disposal to acknowledge the rate, amount, and location of development projected for Windsor. Once amended to reflect the policy guidance provided by the General Plan, the Master Plan for Wastewater Treatment, Storage & Disposal shall serve as the Town’s guide to the provision of wastewater treatment capacity and storage facilities.

E.4.7 The Town shall modify the Trunk Sewer Plan for Wastewater Collection to acknowledge the rate, amount, and location of development projected for Windsor. Once amended to reflect the policy guidance provided by the General Plan, the Trunk Sewer Plan shall serve as the Town’s guide to the provision of wastewater collection capacity.

E.4.8 In updating the Master Plan for Wastewater Treatment, Storage & Disposal, the Town shall observe the following guidelines:

a) The Town shall emphasize the reclamation and reuse of treated wastewater, rather than its discharge to receiving waters, in accordance with the standards and policies of the Regional Water Quality Control Board.

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b) The Town shall target two-thirds of its treated wastewater for reclamation and re-use unless otherwise directed by the Regional Water Quality Control Board or the economics of such disposal is no longer cost effective.

c) Treated wastewater shall comply with prevailing standards in the California Code of Regulations regarding reclamation and landscape irrigation as a condition for its land application.

d) Irrigation with reclaimed water shall not occur on lands known or possibly containing vernal pools or rare or endangered plants, until appropriate studies have been performed and measures adopted that indicate such practices can occur without compromising the quality and integrity of the habitat.

e) Development shall not be approved until wastewater facilities are approved, with funding mechanisms identified and secured.

f) County Service Area 41 shall not be utilized for Windsor’s wastewater storage needs.

g) Update the Master Water Plan to reflect General Plan holding capacity. The Master Plan will show required storage and distribution facilities.

STORMWATER AND DRAINAGE

The Town lies almost entirely within the drainage basin of Windsor Creek, which roughly bisects the Town in two and is part of the larger Mark West watershed. There are five major creeks that flow through Windsor, three of which flow through the Amended Project Area. These creeks, which the Town strives to maintain in or restore to a natural condition, are the:

- Windsor Creek
- East Windsor Creek
- Pool Creek
- Pruitt Creek
- Starr Creek

The Town’s Public Works Department, Engineering Division has the responsibility for design, construction, maintenance, and operation of the Town’s storm drainage system. Storm drain system consists of publicly-owned facilities operated by the Town by which storm water is collected and/or conveyed, including but not limited to any roads with or without discrete drainage systems, ditches (including but not limited to roadside ditches), streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered watercourses, drainage channels, reservoirs, and other drainage structures which are within the Town and are not part of a publicly owned treatment works as defined at 40 CFR Section 122.2.

Title IX of the Town of Windsor Municipal Code (Municipal Code) outlines the Towns’ Flood Damage, Flood Control, and Drainage Ordinance. To ensure adequate drainage, the Town requires project applicants to adhere to existing stormwater drainage design standards as defined in this ordinance, and in its Town of Windsor Zoning Ordinance (Zoning Ordinance). Storm drainage is fully separated from sewage collection (Municipal Code section 12-4-135).

The Street Maintenance Division is responsible for storm patrol of flooded public streets, creeks, and public ditches, and inspection and cleaning of public storm drain system and inlets. New development is subject to a drainage impact fee (Ord. No. 2000-127 §§ 2 (part), 3 (part)). These fees are used to pay for design, engineering, acquisition, and property
acquisition, including right-of-way (ROW) acquisition, and construction of the public facilities designated in the Windsor updated Drainage Impact Mitigation Program.

**Town of Windsor General Plan**

**Objectives**

E.4 Develop minimum acceptable standards for the provision of essential utilities and deliver these services in a cost-efficient manner to reduce the costs of service delivery.

**Policies**

E.4.9 The Town shall modify the Master Drainage Plan to reflect the policy guidance provided by the Windsor General Plan. Once amended, the Master Drainage Plan shall serve as the Town’s guide to the provision of storm drainage capacity, collection lines, and storage facilities.

E.4.10 The Town shall encourage the use of natural or nonstructural stormwater drainage systems, to preserve and enhance the natural features of a site and to assist with the replenishment of the area’s groundwater basin.

**WATER SERVICE**

The Sonoma County Water Agency (SCWA) provides water to approximately 600,000 people in the counties of Sonoma and Marin. SCWA supplies water to the Town, the cities of Cotati, Petaluma, Rohnert Park, Santa Rosa, Sonoma, and the North Marin and Valley of the Moon Water Districts. The Town receives its water from the Russian River Well Field under SCWA’s water rights and from a connection to SCWA’s Santa Rosa Aqueduct to primarily serve the Airport Business Park. The Town has three water supply sources: the Russian River Well Field, the SCWA transmission system, and one off-river groundwater well, called the Bluebird Well, which was used as an off-river supply source to improve system reliability. In 2006, the Bluebird well was taken off-line due to the lowering of the State’s Arsenic standard from 50 parts per billion (ppb) to 10 ppb. The Town also owns the Esposti Well and Keiser Park wells which are primarily used for park irrigation, as well as serving as a backup or emergency source of potable water.

At this time, the total water supply for the Town comes from the Russian River, and the Town offsets about 15% of its urban potable water demand with recycled water.\(^{15}\) The SCWA has imposed summertime water use restrictions for each of the last three summers (2007, 2008, and 2009). The State Water Resources Control Board (SWRCB) ordered reduced flows during the summer of 2009 in the Russian River and set conservation goals for all Russian River water users through October 2, 2009. The Town declared a stage 2 emergency implementing its water shortage contingency plan during this period, and achieved a 20% reduction in water use comparing 2004 to 2009 for the summer period.\(^{16}\) Overall, the requirements of the SWRCB order were met or exceeded, including a 30 percent reduction in diversions by SCWA from the Russian River.

The Windsor Urban Water Management Plan (UWMP) projects that the SCWA will supply 5,750 acre feet of water per year (af/yr) by the year 2030. The projected Town population of 31,339 and commercial/industrial uses are anticipated to generate a 2030 demand for 7,130 af/yr. The Town will use a combination of local groundwater, recycled water supplies, and

\(^{15}\)Update on Water Supply, Memo from Richard W. Burtt, Public Works Director/Town Engineer, April 30, 2009.

future additional conservation measures to supply the difference between demand and the SCWA’s water supply (UWMP, pg. 3-4). Future water supplies from the SCWA are dependent upon planned infrastructure improvements being approved and constructed, which are described in the SCWA’s UWMP.

On September 15, 2009, the SCWA Board of Directors passed a resolution to no longer pursue the Water Supply Project and to withdraw its pending water rights petition. The impact of this action on the Town’s water entitlements currently in its Restructured Water Supply Agreement with the SCWA is uncertain. The Town's water supply planning documents rely on this entitlement to meet future demands.

The land uses within the service areas served by the Town's water system have been documented and the current system demand is 4.0 mgd, on an average day. Land uses at build-out of the Town's General Plan are documented in the 2006 General Plan map and correspond to a projected demand of 6.4 mgd, on an average day. The current water system supplies 5.6 mgd on an average day so current demands can be met. Maximum day demands are projected to increase from 7.45 mgd to 12.11 mgd at buildout. The current water system has the capacity to and entitlements to supply 8.7 mgd on a maximum day, which is sufficient to approximately 2015 when the maximum day demand is projected to exceed 8.7 mgd.\textsuperscript{17}

These demand versus supply comparisons are based upon Windsor being able to access its available water rights on the Russian River through its River Wells, and its available capacity through its connection to the Sonoma County Water Agency Aqueduct. In years like 2009, under constrained supplies accompanying "temporary urgency changes in permits" or other such impairment conditions, available supplies may not be sufficient to meet average and/or maximum day demands, and emergency water shortage actions will need to be implemented by the Town.\textsuperscript{18}

A Capital Improvement Program has been prepared and presented in the Final Draft Water Master Plan (Draft WMP). The Draft WMP embraces a continuation in the Town's supply diversification strategy of water conservation, urban recycled water use, and sustainable groundwater development to take pressure off the Russian River and its resources. A key change between the current WMP (2000) and the 2009 Draft WMP is a recommendation that the off-River well program be pursued as an active groundwater storage and recharge program. Prior to adoption of the Draft WMP, environmental review is being considered to assess the potential for significant impacts from its implementation.\textsuperscript{19}

The Windsor Water District (Municipal Code Title XII) manages water supply and delivery to the Town. The Town has nine operators who are state-certified in both water treatment and distribution. The Town tests constituents for drinking-water quality in order to comply with all State and Federal regulations.\textsuperscript{20} The Town’s Public Works Department, Water Division is in charge of the daily operation of the Town’s potable water system, which includes pumping and treatment of over 1.3 billion gallons annually. This system includes over 140 miles of distribution mains and over 5 million gallons of water storage. The system consists of:

- 5 large wells located adjacent to the Russian River
- 2 emergency wells
- Direct connection to the SCWA aqueduct
- 16 reservoirs

\textsuperscript{17}Draft Water Master Plan Update, pg 62; Craig A. Scott, Town of Windsor, Senior Engineer.
\textsuperscript{18}Town of Windsor Agenda Report, Council Meeting 7/1/2009, Acceptance of Draft Water Master Plan Update
\textsuperscript{19}Ibid.
Town of Windsor General Plan

Objectives

E.4 Develop minimum acceptable standards for the provision of essential utilities and deliver these services in a cost-efficient manner to reduce the costs of service delivery.

Policies

E.4.1 The availability of a long-term, reliable potable water supply and adequate wastewater treatment capacity shall be primary determinants in the rate of growth for Windsor. Construction of water supply and wastewater treatment capacity shall be phased to meet the needs of the community. The Town shall assure that there is adequate supply or that such supply would become available with occupation of the proposed structures prior to approving a project.

E.4.2 The Town shall modify the Master Water Plan to acknowledge the rate, amount, and location of development projected for Windsor. Once amended to reflect the policy guidance provided by the General Plan, the Master Water Plan shall serve as the Town’s guide to the provision of water treatment capacity, distribution, and storage facilities.

E.4.3 The Town shall update its Master Water Plan keeping in mind the following guidelines:

a) Distribution facilities shall be designed at a minimum to satisfy regulatory, industry, and Town standards.

b) Sufficient water shall be available to meet domestic potable water requirements, as well as fireflows for three-hour durations of a minimum of 1,000 gallons per minute for residential uses and a minimum of 3,000 gallons per minute for commercial and industrial uses.

c) Storage shall be provided such that there is a reserve amount equal to a minimum of 100 percent of average daily demand, and equalizing storage equal to 25 percent of maximum daily use.

E.4.4 The Town shall continue to require the use of water-conserving plumbing fixtures, such as low-flow toilets and showerheads, in all new development permitted in the Town.

E.4.5 The Town shall encourage new development to use drought-tolerant vegetation in future landscaping to reduce the need for irrigation.

Municipal Code Regulations and Restrictions on Water Use

The Town has adopted Section 12-3-361 of the Municipal Code to promote water conservation and the efficient use of potable water furnished by the Town of Windsor by eliminating all intentional or unintentional water waste when a reasonable alternative solution is available, and by prohibiting use of equipment which is wasteful.

The Municipal Code further specifies regulations and restrictions on water usage to encourage conservation and efficient use of water (Ord. No. 99-123 §1; Ord. No. 2000-129 §1). The Town’s water conservation program includes: the use of reclaimed water for irrigation; requirements for water saving plumbing fixtures; demonstration gardening featuring low-water use plants; and water education programs at local schools. General Plan Policy CD-E.4.4 and Title XII Chapter 3, Section 12-3-310 of the Municipal Code require that all new development install water-conserving plumbing fixtures (e.g., low-flow...
toilets), and General Plan Policy CD-E.4.5 encourages use of drought-tolerant vegetation in on-site landscaping.

**PARKS, RECREATION, AND CULTURAL**

Currently, the Town manages and maintains 18 public parks. Neighborhood parks, totaling 37.6 acres, range from 0.3 acres to 5.0 acres in size and community parks, totaling 76.3 acres, range from 4.5 to 27 acres in size. Both provide amenities such as barbeque grills, picnic areas, volleyball courts, playgrounds, and play areas. A total of 1,356 acres of regional parks operated by the County are also accessible to the Town’s residents. These range from 211 to 845 acres in size and contain open grass areas, walking paths and passive recreation areas. In addition, the Town manages three facilities, including the Huerta Gymnasium, the Windsor Community Center, and the Windsor Senior Center. The only park located within the Amended Project Area is the 4.5 acre Town Green.

The Town’s General Plan sets the standard of:

- 2 acres of neighborhood parkland per 1,000 residents (neighborhood parks typically range from one to five acres in size)
- 3 acres of community parkland per 1,000 residents (community parks typically range from five to 50 acres in size)
- 10 acres of regional parkland per 1,000 residents (regional parks typically range from 50 to 200 acres in size)

Policy E.3.3 of the General Plan summarizes the Town’s goal to provide 5 acres of neighborhood and community parks and special recreation facilities per 1,000 residents.

Based on the Town’s 2008 estimated population of 26,600 persons, and the current total neighborhood and community parkland acreage of approximately 114 acres, the Town’s current rate of parkland per 1,000 residents is approximately 4.3, which meets the standards set forth in the General Plan, but falls short of the goal of 5 acres per 1,000 residents.

**Town of Windsor General Plan**

**Policies**

E.3.1 Recreational opportunities should be provided to all residents, regardless of race, age, economic status, physical disability, or location of residence. Because each of these groups has different recreational needs, the Town should provide open space and outdoor recreational facilities which are appropriate to the type of user and the type of park space.

E.3.2 To maximize public access to recreational opportunities, Windsor should provide a variety of parklands, accommodating a diverse mix of facilities and programs. Three different park types are proposed as described in Table 4-3 [of the General Plan]. Potential sites for community and neighborhood parks are shown on the Land Use Plan Map. The size and programs provided at local parks should vary based on the physical setting of the area, the park’s location, and the socio-economic profile of the neighborhood. For example, smaller, passive parks might be appropriate in a neighborhood largely characterized by seniors. On the other hand, local parks with turf, play area, swing sets, and other play equipment might be appropriate in a neighborhood largely characterized by young families.

E.3.3 Windsor should provide 5 acres of neighborhood and community parks and special recreation facilities per 1,000 population.
E.3.4 In developing its recreational programming, the Town shall pay particular attention to activities and facilities for Windsor’s youth, aged 8 to 16 years, and organized sports. Given the Town’s high demand for these programs, the Town should place priority on locating, designing, and constructing a multi-purpose sports complex.

E.3.5 Sites being considered for development as a park should meet the following usability standards:

a) The topography and land configuration should be suitable to accommodate the park’s proposed uses.

b) Sites should have or be able to achieve safe pedestrian and bicycle access.

c) Sites should be visible from the street to enhance enjoyment of the park by people driving by and to facilitate informal surveillance by nearby residents that can serve to deter crime.

d) Noise generated by park use should be mitigated to avoid disturbing adjacent residents.

e) Lighting should be designed to limit light and glare impacts on adjacent residents.

f) Parks should be buffered from adjacent residents through the use of fences, landscaping, etc., to prohibit undesired access to private property.

g) At least 50% of the park’s perimeter should be along a public road. Rear yard fences along the periphery of parks should be avoided.

E.3.6 Windsor should provide special service facilities that serve a single recreation function, the recreational needs of a special population, and/or indoor recreational activities. These facilities should be on or adjacent to parks or existing school sites. Other facilities desirable in Windsor include, but are not limited to:

a) Child care centers

b) Youth centers (for youth 8-16 of age)

c) Golf courses

d) Community gardens

e) Boys and Girls Clubs

E.3.7 A contribution of land and/or fees in lieu of dedication for park purposes shall be required of all new residential subdivisions in Windsor. The total contribution shall be equivalent to the provision of 5 acres of land for each 1,000 persons projected to live in the proposed development. Land area for park dedication shall be based on net acreage excluding any streets. Any park or recreation facility constructed as part of a private development, and intended solely for use by residents of the development, is not considered a public park, and the property owner/developer will still be required to contribute in-lieu park fees or land.

E.3.8 Windsor should establish agreements with the Windsor Unified School District to allow for joint use and maintenance of combined school/park facilities.

E.3.9 The Town should consider revenue-generating opportunities in developing and managing park and recreation facilities, including differential use fees for
E.3.10 Appropriate creekside areas should be developed for recreation, trails, and other public uses consistent with public safety and neighborhood security.

E.3.11 The Town should encourage the establishment, maintenance and long-term security of continuous trails and sites for related amenities.

E.3.12 Windsor should continue to solicit citizen participation in evaluating and planning park and recreation facilities and services. The Park and Recreation Commission should continue to function as representative of the Town’s residents and play a significant role in the planning and development of park and recreation services.

E.3.13 The Town should support the County’s efforts to acquire additional regional park facilities in the North Santa Rosa/Windsor area as opportunities and availability of funds permit. Additional regional park sites that should be considered include a portion of the Shiloh Ranch and lands adjacent to the Russian River in the vicinity of Windsor River Road and Eastside Road.

**Implementation Programs**

E.4 Local Parkland Acquisition. Section 66477 of the California Government Code (Subdivision Map Act/Quimby Act) provides a basis for acquiring and/or financing the development of parklands and recreational facilities. The dedication of land or the derivation of the fee amount shall be based on 5 acres of parkland per 1,000 population. In order to improve the ability of the Town to secure appropriate sites, local parkland sites shall be rezoned to Park and such rezoning shall not be approved until the Town and the property owner/developer have entered into an agreement about the future use of the site for parkland. The Park and Recreation Commission would take the lead, in conjunction with the Planning Commission, to designate park sites on a parcel-by-parcel basis with developers. (Planning, Community Services)

**IMPACTS AND MITIGATION**

**Methodology**

Redevelopment would remove barriers to planned development within the Amended Project Area, which would generate demands on public services and utilities consistent with the adopted General Plan. However, redevelopment also directly funds infrastructure improvements to serve existing and projected development within the Amended Project Area. The adequacy of existing plans, policies, and ordinances to provide for public services and utilities within the Amended Project Area was assessed in reference to redevelopment objectives and projects.

**Significance Criteria**

The Amendment would have a significant impact on the environment related to public services and utilities if they would:

- Result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which
could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives public services

- 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
- Have insufficient water supplies available to serve the project from existing entitlements and resources, such that new or expanded entitlements were needed
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to project demand in addition to the provider’s existing commitments
- Violate applicable federal, State, and local statutes and regulations related to solid waste

**PROJECT COMPONENTS**

Infrastructure improvements allowed under the Amendment cover a variety of public works projects including correcting utilities; traffic capacity projects and new streets and street improvements; streetscape improvements; undergrounding overhead transmission lines; storm drainage and sanitary sewers; flood control improvements; design and development of new wells and improvement of water delivery systems; wastewater treatment improvements; and many other assorted capital projects. The Agency may also fund community-based projects focused on the need for new or improved community facilities such as parks and recreation facilities, community/teen centers, libraries, and civic center improvements.

**FISCAL EFFECTS NOT DISCUSSED**

This EIR does not discuss the fiscal effects of the proposed Amendment. CEQA does not require an evaluation of economic or social effects unless they are related to a physical change. As described in Chapter 3.0, Project Description, adoption of the proposed Amendment will authorize the Agency to finance improvements and programs through tax increment financing in the Amended Project Area; the Agency will collect tax increment from the Added Area for 45 years (to FY 2055, if Amendment is adopted in 2010) and from the Existing Project Area for an additional 10 years (to FY 2027, if Amendment is adopted in 2010). Tax increment financing reallocates a portion of the future growth in property tax revenue to the Agency instead of other taxing entities. To mitigate any potential fiscal burden or detriment on those taxing entities, the California Community Redevelopment Law (CRL) requires the Agency to make certain mandatory payments to the taxing entities throughout the life of the Redevelopment Plan and for as long as the Agency receives tax increment revenues. In enacting the mandatory payment requirement, the Legislature declared that a redevelopment agency shall not be required, as a measure to mitigate a significant environmental effect or otherwise, to make any other payments to, or pay for any facilities that will be owned by, an affected taxing entity (CRL Section 33607.5(f)).

The fiscal effects of the proposed Amendment will be evaluated in two separate reports that will be prepared by the Agency as part of the process leading to adoption of the proposed Amendment. The first report is a Preliminary Report to the Affected Taxing Entities pursuant to CRL Section 33344.5. The Preliminary Report was transmitted to the affected taxing entities on August 26, 2009, and the Agency is currently consulting with each affected taxing entity concerning the financial and other effects of the Amendment as provided in CRL Section 33328. The second report is a Report to the Town Council pursuant to CRL Section
33352. The Report to the Town Council, which will incorporate this EIR by reference, serves as the major evidentiary document supporting the proposed adoption of the Amendment. It is anticipated that the Report to the Town Council will be made available for public review in December 2009 and that a joint public hearing of the Agency and Town Council to consider the proposed Amendment will be held in April 2010.

**IMPACT STATEMENTS AND MITIGATION MEASURES**

**Impact 6.9-1 Redevelopment engendered development could increase general population demands on public safety. This would be a less-than-significant impact.**

Studies have shown that areas experiencing economic downturns are more likely to encounter higher rates of criminal activity.\(^{21}\) Redevelopment in the Amended Project Area would therefore be a positive tool for combating crime and reducing demand on police services, since it will primarily provide the financial resources necessary for rehabilitating and redeveloping areas where crime is more likely to continue taking place. Redevelopment is intended to steer the economy of the Amended Project Area in a positive direction, ultimately revitalizing an area for an active commercial sector. The proposed extension of plan effectiveness in the Existing Project Area would continue to provide similar redevelopment benefits for an additional 10 years.

The proposed Amendment would result in the elimination of barriers to General Plan development, and thus could allow a planned increase in Town population over existing conditions. These population increases were considered in the General Plan EIR, which determined that such increases would not result in a significant increase in emergency response times. Redevelopment tools would further allow for private assistance and public improvements to eliminate existing blight and structural deficiencies that leads to higher crime rates and health and safety problems. Redevelopment may also assist with the construction of fire and police facilities. Overall, the use of redevelopment to eliminate blight in the Amended Project Area and provide new public facilities and service programs may have a beneficial impact on fire and police service levels.

Any proposed new development in the Amended Project Area will be required to incorporate design features identified in the Uniform Building Code (UBC) and the Uniform Fire Code, and both the Fire District and the WPD are given the opportunity to review and comment on the design of any redevelopment project that could affect fire or public safety. The incorporation of safety measures required by the UBC, the Uniform Fire Code, City permitting requirements, and redevelopment assistance with facility needs, are expected to ensure any physical public safety impacts associated with redevelopment projects are **less than significant.**

**Mitigation**

None required

**Impact 6.9-2 Redevelopment engendered development could increase general population demands for school facilities. This would be a less-than-significant impact.**

The proposed Amendment may result in an increase in infill housing construction in the Added Area. Such increases could result in an increase in student demand on the WUSD schools. The estimated student growth in the Added Area over the 30-year duration of the Amendment is 406 net new school age children by 2040. This assumption is based upon the number of net new units that would be allowed under a mid-range build-out of the General Plan and the WUSD’s student yield factor of 0.4601 students per housing unit (School Facilities Master Plan, 2006-2011).

Any new residential development must be consistent with the General Plan, and could eventually develop in the Amended Project Area in the absence of the Amendment. Annual residential growth is restricted by the Town’s Growth Management Ordinance, which provides additional time for the Town and District to plan for necessary facilities. The WUSD requires that developers pay school impact fees to offset the addition of any new students into the district, and recently passed a $50 million school construction bond.

Under AB 1290, which amended the CRL, the State recognized the potential adverse impact on schools from redevelopment, and mitigated the effect by specifically providing a net increase in funding for school capital improvements. The legislature specifically found in Article 16.5, Section 31, amending Section 33607.5 (g)(2) of the Health and Safety Code, that notwithstanding any other provision of law, a redevelopment agency shall not be required, either directly or indirectly, as a measure to mitigate a significant environmental effect or as part of any settlement agreement or judgment brought in any action to contest the validity of a redevelopment plan pursuant to Section 33501, to make any other payments to affected taxing entities, or to pay for public facilities that will be owned or leased to an affected taxing entity. Whereas potential new students in the Added Area were anticipated in the General Plan, and AB 1290 provides for a net increase in funding for school capital improvements in a redevelopment area, the Amendment would have a less-than-significant impact on school facilities.

**Mitigation**

None required

**Impact 6.9-3 Redevelopment engendered development could increase solid waste generation and demands on existing solid waste facilities. This would be a less-than-significant impact.**

Development engendered by the Amendment would increase solid waste generation in the Amended Project Area, consistent with General Plan projections. The three landfills that serve the Amended Project Area currently have sufficient capacity to accommodate projected growth in the County through 2039. Diversions from the waste stream continue to improve, as evidenced by the increased diversion rate from 59% in 2005 to 64% in 2006. Future reductions in the waste stream through increased recycling and reuse are anticipated to further extend the lives of these landfills. The proposed Amendment will not promote population levels beyond that which is planned for in the General Plan. Therefore, the Amendment will have a less-than-significant impact on solid waste facilities.

**Mitigation**

None required
Impact 6.9-4 Redevelopment engendered development could increase general population demands on wastewater collection and treatment. This would be a less-than-significant impact.

The proposed Amendment would not intensify land uses beyond those planned for in the General Plan. Treatment plant capacity is planned to accommodate General Plan growth as the Town develops. Existing customers pay for their portion of their respective relief projects via their monthly user charges. Future customers will pay for their portions through impact fees (most relief projects are allocated to both existing and future customers). The Municipal Code specifies construction requirements for wastewater infrastructure and connection as development occurs. Redevelopment funds may be used to assist in the design and development of new collection, treatment, and disposal/reuse systems and development and improvement of sewer mains and laterals to serve the Amended Project Area. The new Eastside Road Storage Project is being constructed to provide additional recycled water storage to meet current and future operational requirements of the Town's recycled water system. Therefore, the proposed Amendment would have a less-than-significant impact on wastewater collection and treatment.

Mitigation

None required

Impact 6.9-5 Redevelopment engendered development and infrastructure projects could affect stormwater and drainage systems. This would be a less-than-significant impact.

The Town manages a system of roadway drainage, ditches, storm drains, pumping facilities, retention and detention basins, natural and human-made or altered watercourses, drainage channels, reservoirs, and other drainage structures to provide drainage throughout the Amended Project Area. Redevelopment funds may be used to assist in the design and development of new drainage infrastructure and improvement of existing drainage systems to improve service in the Amended Project Area. This would have a beneficial impact on the Town’s drainage infrastructure.

The proposed Amendment would not intensify land uses beyond those planned for in the General Plan. New development must adhere to existing stormwater drainage design standards, as defined in the drainage ordinance and the Zoning Ordinance, and must pay a drainage impact fee to help pay for system-wide improvements. Drainage fees from redevelopment engendered development and redevelopment infrastructure improvements would improve stormwater and drainage facilities and service throughout the Amended Project Area. The Amendment would therefore have a less-than-significant impact on stormwater and drainage.

Mitigation

None required

Impact 6.9-6 Redevelopment engendered development could increase general population demands on water service. This would be a less-than-significant impact.

Future water supplies from the SCWA are dependent upon planned infrastructure improvements being approved and constructed, which are described in the SCWA’s UWMP. On September 15, 2009, the SCWA Board of Directors passed a resolution to no longer pursue the Water Supply Project and to withdraw its pending water rights petition; this action
may reduce the water available to the Town currently in its Restructured Water Supply Agreement with the Agency. This may restrict the number of building permits issued in the Amended Project Area until infrastructure and supplies come online, or until sufficient water conservation within the Town reduces demand on current supplies. The Draft Water Master Plan will need to address any anticipated changes in water agreements.

The Town aggressively promotes water conservation and the efficient use of potable water furnished by the Town. This includes a water waste ordinance, the Green Building ordinance, and the use of recycled water. Rebate programs are offered for residential clothes washers, high efficiency toilets (HET), and water efficient landscapes. For non-residential users, the Town partners with the Sonoma County Business Environmental Alliance to offer all commercial, industrial, and institutional accounts free comprehensive water use assessments. Other programs include landscape water surveys, HET retrofit, water efficient landscape rebates. The Town also offers incentives to commercial, industrial, and institutional water customers for the implementation of process and equipment changes that reduce water use by at least 50,000 gallons per year. These efforts have reduced demand by 20% over 2004 summer usage, and have contributed to a 30% reduction in Sonoma County demand.

All development within the proposed Amended Project Area must be consistent with the General Plan and the UWMP, and would be required to contribute its fair share to the expansion of water treatment facilities to accommodate increases in flow through the system. A Growth Control Ordinance has also been adopted to accommodate growth anticipated under the General Plan, and to manage new development so that it occurs concurrently with necessary public services, facilities, and infrastructure. Redevelopment funds may be used to assist in the design and development of new wells and improvement of delivery systems, including water mains and laterals, to better serve the Amended Project Area. Redevelopment may also assist in efforts to improve water conservation through rehabilitation of older properties. New construction would be required under existing Town requirements to ensure an adequate water supply prior to permit approvals, and to meet Green Building Ordinance requirements that include water conservation measures. Planned development engendered by the Amendment would therefore have a less-than-significant impact on water service.

Mitigation
None required

Impact 6.9-7 Redevelopment engendered development could increase general population demands on parks, recreation, and cultural facilities. This would be a less-than-significant impact.

Current projections estimate the Windsor population will reach 31,339 persons in the year 2030. At that population, without the addition of additional parkland, the existing parks system would provide approximately 3.6 acres of parks per 1000 population. This would not meet the Town’s goal to provide 5 acres of neighborhood and community parks and special recreation facilities per 1,000 residents.

Currently there is only one park located within the Amended Project Area. The proposed Amendment is consistent with adopted plans that considered recreation when land uses were adopted. The Amendment further authorizes the design and development of new parks and infrastructure and improvement of existing park buildings and infrastructure to better serve the Amended Project Area. As redevelopment removes barriers to new residential development, the Municipal Code requires all future subdivisions to provide
parkland or in-lieu fees to meet the 5 acres per 1,000 residents standard. Therefore, the proposed Amendment would have a less-than-significant impact on the quality or quantity of parks, recreation, and cultural facilities.

Mitigation

None required
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TRANSPORTATION AND CIRCULATION

Windsor Redevelopment Project Proposed Fifth Amendment
This Subchapter of the Environmental Impact Report (EIR) describes the transportation setting of the Windsor Redevelopment Plan Fifth Amendment (proposed project or Amendment). The analysis focuses on the segments of the transportation networks that serve as direct or key indirect linkages to the Existing Project Area and Added Area (Amended Project Area). Whereas the Amendment does not directly propose new development but would encourage development consistent with the Town of Windsor General Plan (General Plan) by funding incentives, programs, and public improvements in the Amended Project Area, this section assumes the Amendment would remove barriers to General Plan build-out, as defined by the Housing Element update (2004).

Analysis in this section was drawn from existing Town documentation, including the Town of Windsor General Plan Environmental Impact Report (GP EIR) and Baseline Report (1996), the Sonoma-Marin Area Rail Transit (SMART) Project EIR, Traffic Impact Fee Update Report (2008), Keiser Park EIR (2008), Sanderson Project EIR (2007), Sonoma County General Plan 2020 (September 2008), and the Environmental Assessment/Final EIR for the Highway 101 From Old Redwood Highway to Rohnert Park Expressway Project (August 2007).

There was one comment on the Notice of Preparation (NOP) regarding transportation and circulation from Caltrans. This was a form letter requesting a project-specific traffic analysis. The Amendment would not change land uses and proposes no site-specific or project-specific activities; therefore, no project-level review is warranted at this time.

ENVIRONMENTAL SETTING

ROADWAY SYSTEM

The roadway system serving the Town of Windsor (Town) in the Amended Project Area includes the United States Highway 101 (US 101) and a number of “Crosstown” roadways identified in the General Plan, as identified on Figure 6.10-1. The following describes the regional and local roadways directly serving the Amended Project Area:

- **US 101** – Within the Amended Project Area, regional access is provided by US 101, which is generally oriented in a north-south direction and would provide access to the Amended Project Area via its interchanges at Arata Lane and Old Redwood Highway, Windsor River Road, and Shiloh Road. US 101 is classified as a “freeway” in the General Plan, and US 101 is the only continuous north-south thoroughfare serving the major urban areas in Marin and Sonoma counties.

- **Old Redwood Highway** – Old Redwood Highway is a two-lane, north-south crosstown roadway that parallels US 101 in the Added Area until it merges with Windsor River Road and crosses southeastward under the freeway as a divided roadway.

- **Arata Lane** – Arata Lane is a two-lane, east-west crosstown roadway in the vicinity of US 101, with a freeway interchange near Old Redwood Highway, located within the Added Area at its intersection with Old Redwood Highway.
6.10 TRANSPORTATION AND CIRCULATION

Source: The Ervin Consulting Group, 2009

FIGURE 6.10-1
AMENDED PROJECT AREA ROADWAY SYSTEM
• **Windsor River Road** – Windsor River Road is a two-lane east-west crosstown roadway with curb, sidewalk, and gutter bisecting the center of the Town. Windsor River Road terminates at the Old Redwood Highway/Conde Lane intersection; Old Redwood Highway continues in a general south easterly direction from that intersection. Windsor River Road provides direct access to US 101.

• **Shiloh Road** – Shiloh Road is a two-lane crosstown roadway abutting the southern edge of the Added Area, with discontinuous curb, sidewalks, and gutters.

• **Hembree Lane** – Hembree Lane is a two-lane, north-south crosstown roadway with discontinuous curb, sidewalks, and gutters that borders the Existing Project Area to the east and crosses Old Redwood Highway. Hembree Lane has left turn pockets at Old Redwood Highway, Shiloh Road and adjacent to the Shiloh Shopping Center.

• **Windsor Road** – Windsor Road is a two-lane north-south crosstown roadway, with discontinuous curb, gutter, and sidewalk south of Windsor River Road, but fully improved with parallel parking on both sides north of Windsor River Road to Old Redwood Highway.

• **Starr Road** – Starr Road is a two-lane, north-south crosstown street, with discontinuous curb, gutter, and sidewalk that terminates at Old Redwood Highway.

*Roadway Conditions*

**Streets**

Many roadways in the Amended Project Area lack curbs, gutters, and sidewalks. A curb serves as a gutter for proper drainage of the street, and provides for safety by keeping drivers from driving onto the shoulder, which can be potentially unsafe to pedestrians, including small children. Gutters guide water from rain into storm drains, so that it does not accumulate on the road; proper street drainage prevents erosion and flooding.

Large puddles can also be dangerous, as they can contribute to a lack of traction and the loss of control of an automobile, resulting in accidents. Water and mud can spray up from tires onto the vehicles behind, causing them to lose visibility and potentially splashing on pedestrians. Paving public streets with asphalt makes the streets durable and makes it easier for drivers to navigate heavy vehicles.

Lack of sidewalks restricts pedestrian access to schools and commercial areas and increases hazards to pedestrians and bicyclists. Such inadequate street improvements currently exist in the Amended Project Area, which accentuate blighting conditions and are a potential health and safety hazard.

**Freeways**

The US 101 High-Occupancy Vehicle (HOV) Lanes – North Phase A Project is under construction to widen US 101 from four to six lanes to expand about 7.6 miles of HOV lanes from Steele Lane in Santa Rosa to Windsor River Road in Windsor. The project also corrects substandard features, adds auxiliary lanes, provides Intelligent Transportation Systems (ITS) elements, and rehabilitates the existing pavement. Right-of-way (ROW) is minimal, and sound walls are not included in the North Phase A Project. The North Phase A
Project will complete one of the remaining portions of the planned continuous US 101 HOV lanes system.¹

RAIL

The Northwestern Pacific Railroad (NWPRR) tracks parallel US 101 on its west side, traveling in a northwest-southeast direction. Located approximately 1/8 to 1/4 mile west of the freeway, the NWPRR tracks have at-grade crossings within the Amended Project Area at the intersection of Windsor River Road and Windsor Road. Train service was stopped in 1998 by the Federal Railroad Administration (FRA) due to safety concerns; repairs to 62 miles of the railway between Napa County and Windsor have recently been completed.² Before freight operations can begin, the FRA must lift the emergency order that stopped train service in 1998. The North Coast Railroad Authority (NCRA) must also certify an EIR originally issued in March 2009. The draft EIR is anticipated to be reissued in November, with the goal of final adoption in January or February 2010. The EIR evaluates the impacts of train operations on the Russian River Division, defined as Lombard to Willits.

The freight service is anticipated to be restored on the repaired rail by March 2010 after certification of the EIR. The SMART passenger service (voter-tax approved and desired service) on the same rail line is due to resume passenger service by 2014. Railroad scheduling varies with seasonal demands and other economic factors, but the main line formerly averaged two trains per day, several days per week. Through trains usually had one or two locomotives with 20 to 90 cars, depending upon shipping demands. Local trains are generally shorter. The NWPRR estimates operations of 3 roundtrip trains per week in 2010, increasing to 3 roundtrips per day in 2011 and beyond. Freight service on the proposed SMART corridor would operate through Windsor from Cloverdale and the Ignacio Wye in Novato as it continues to and from points east of the Wye and north of Cloverdale.³

PUBLIC TRANSPORTATION

Public transit within the Amended Project Area is provided by a combination of services by various transit operators. Sonoma County Transit (SCT) provides local bus service and paratransit (defined as curb-to-curb public transportation available to disabled persons who meet the eligibility requirements of the Americans with Disabilities Act (ADA)), as well as connection to regional services. The SCT Route 66 Loop serves the Town and makes stops within a maximum of 0.8 miles of all portions of the Amended Project Area. Route 60 provides regional bus transit service 17 times on weekdays and eight times on weekends between the City of Cloverdale to the north and the City of Santa Rosa to the south, picking up patrons in the Amended Project Area along Windsor Road, Windsor River Road, Shiloh Road, Hembree Lane, and Old Redwood Highway. Route 62 loops through Downtown, connecting with SCT at the Santa Rosa Transit Mall. Transit routes are identified on Figure 6.10.² ⁴ SCT also services a park and ride lot at Old Redwood Highway and Starr Road.

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³ Ibid.
6.10 TRANSPORTATION AND CIRCULATION

FIGURE 6.10-2
PUBLIC TRANSIT

Town of Windsor, CA Redevelopment Plan Fifth Amendment
Prepared 10/28/2009 by
The Ervin Consulting Group

Source: Ervin Consulting Group, 2009
The Town also has a Multi-Modal Transit Station adjacent to the NWPRR at Windsor River Road and Windsor Road where transfers occur between Routes 60 and 66 occur, and parking is provided for transit users.

Regional transit routes are provided by Golden Gate Transit (GGT), connecting with SCT at the Santa Rosa Transit Mall. This bus service acts as a commuter service between San Francisco and northern communities along US 101. GGT offers peak direction, peak hour service. Peak direction is defined as being toward San Francisco in the morning and away from San Francisco in the evening. This bus service offers efficient service with relatively few stops. GGT commuter routes 72, 73, 74, 75, and basic bus routes 80 and 81 connect with SCT at the Santa Rosa Transit Mall. Commuter buses operate weekdays generally between 4 AM and 7:30 AM, and 2 PM and 6:30 PM. 5

BIKEWAYS

The Windsor Bicycle and Pedestrian Master Plan (2008), developed as a component of the Sonoma County Transportation Authority’s (SCTA’s) 2008 Countywide Bicycle and Pedestrian Master Plan, describes existing and planned bicycle facilities and trails. Railway trails are also identified as a high priority, and the SMART ROW is mentioned as a proposed trail consistent with SMART objectives.

The existing bicycle network in Windsor consists of Class I pathways, and Class II bike lanes. Officially designated bicycle facilities are classified as follows:

- **Class I**: Off-street bike trails or paths that are physically separated from streets or roads used by motorized traffic
- **Class II**: On-street bike lanes with signs, striped lane markings, and pavement legends

Approximately 2.5 miles of Class I pathways are provided throughout the Town, including segments along the Windsor Creek, East Windsor Creek, Pool Creek, and the NWP/SMART trails. Approximately 10.25 miles of existing Class II bike lanes include north-south segments on Hembree Lane, Windsor Road, Brooks Road, Los Amigos Road, Old Redwood Highway, and Conde Lane; and east-west segments on Arata Lane, Windsor River Road, and Shiloh Road. In recent years, Windsor has made significant steps in the development of its proposed Class II bikeway network. Currently, segments of Class II bike lanes are provided on most of the Town’s cross-town connectors with approximately 50% of the Town-wide network completed. However, US 101 – which bisects the community – remains a significant barrier to continuous east-west access.

In the Amended Project Area, Class II bikeway facilities exist on portions of Windsor River Road, Hembree Lane, Shiloh Road, and Old Redwood Highway. Class I facilities are located along East Windsor Creek between US 101 and the railroad ROW. The planned extensions of Class I, Class II, and Class III bike routes are depicted on Figure 6.10-3.

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Bicycle and Pedestrian Facilities

Bike Routes
- Classic Existing
- Classic Proposed
- Highlighted Route on the Regional Network

Bicycle Amenities
- Bike Parking - Existing
- Bike Parking - Proposed
- Bike Racks - Existing
- Bike Racks - Proposed

Pedestrian Crossing Enhancements
- Existing
- Proposed

Pedestrian Oriented Areas
- Pedestrian Enhancements

Multimodal Connections
- Existing
- Proposed

Transportation Features
- Street Rail at Highways
- Trolley

Geographic Elements
- City limits of influence
- Inland Wetlands
- Floodplains

NOTE: Proposed facilities outside of Windsor Town limits are shown to illustrate connectivity with the countywide system. The Town of Windsor has no jurisdiction over projects outside of City limits. Any proposed facilities shown outside of Windsor Town limits have been proposed by other jurisdictions.

Town of Windsor, CA Redevelopment Plan Fifth Amendment
Prepared 12/28/2009 by EN
Prepared 12/31/08 (modified 10/28/2009, ECG)

Source: Sonoma County Transportation Authority, 12/31/08 (modified 10/28/2009, ECG)

FIGURE 6.10-3
BICYCLE AND PEDESTRIAN FACILITIES
PEDESTRIAN FACILITIES

Pedestrian facilities, such as sidewalks or trails, are currently lacking in many parts of the Amended Project Area. However, the Town maintains a strong pedestrian-oriented vision. As depicted on Figure 6.10-3, the central portion of the Existing Project Area and the Shiloh Road portion of the Added Area are planned pedestrian areas.

Planning documents and design guidelines, including the General Plan, the 2006 Update of the Town of Windsor Downtown Plan (Downtown Plan), the Shiloh Road Vision Plan, and the Old Redwood Highway (ORH) Vision Plan north of downtown, support walkable communities with pedestrian environments. The Downtown Plan designs central Windsor as pedestrian-oriented, with dense housing, shops, offices, and a recently completed downtown intermodal station surrounding a Town Green. The Downtown Plan calls for new development to be oriented to pedestrians by bringing building faces to the sidewalk, constructing wide, shaded sidewalks, and encouraging ground floor uses that are compatible with pedestrian access.

The Shiloh Road Vision Plan, which incorporates most of the Shiloh portion of the Added Area, prioritizes pedestrians equally with automobiles. The village is designed to promote walking with wide sidewalks, interesting storefronts, neighborhood-serving shops with housing above; medium-to-high density multi-family housing; and single-family homes with front porches. The ORH Vision Plan includes one quarter mile “walking circles” that comprise neighborhoods where a mix of housing, open space, daily needs, and transit stops are encouraged.

PARKING

The Town of Windsor Downtown Parking Planning Study (Parking Planning Study)\(^6\) was recently conducted to determine if the parking supply in the Downtown area is adequate under existing conditions and for future build-out conditions. Future parking supply and demand under build-out conditions was determined using the methodology described in the report. The Parking Planning Study determined that for a peak month period, the projected peak demand yields a surplus of 23 spaces for a typical weekday and 152 spaces for a typical weekend day. For an average month, the projected peak demand yields a surplus of 263 spaces for a typical weekday and 463 spaces for a typical weekend day. The Parking Planning Study assumed that new developments build on-site parking. Based on the shared parking analysis projections, the parking supply was determined to be adequate for future conditions without the construction of structured parking.

EXISTING AND FUTURE TRIP GENERATION

The Town recently prepared an updated traffic study (Study) in order to provide the information needed to establish a new and more comprehensive Traffic Impact Fee Program.\(^7\) Traffic count data was collected and current operation during the AM and PM peak periods were evaluated for 33 intersections. Fourteen of these intersections are located within the Amended Project Area. Land use estimates for all under-developed and vacant land based on the General Plan Housing Element update was obtained and used to

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\(^7\) Traffic Impact Fee Update Revised Final Report, Town of Windsor, 11/19/2008.
estimate trips that the potential development will add to the street network. Deductions were applied as appropriate to reflect the pattern of traffic passing by and patronizing a new commercial establishment while en-route between a primary origin and destination as well as the incidence of local residents being customers and employees of local businesses. Once all of these future trips had been added to the network, operating conditions were evaluated. Where deficient operation was projected, improvements necessary to achieve acceptable operation were determined and incorporated into the build-out assumptions.

The study identified a list of projects that were deemed necessary to maintain acceptable traffic operation in the Town at General Plan build-out.

**LEVEL OF SERVICE**

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. The LOS designation for intersections is generally accompanied by a unit of measure, which indicates an amount of delay for intersections or travel speed for road segments.

**TRAFFIC OPERATION STANDARDS**

The Town’s adopted LOS Standard is contained in the General Plan, and reads as follows:

> The Town shall adopt a level of service standard D for Crosstown Streets and signalized intersections. The Town shall recognize that reducing congestion must be balanced against improvement costs and community character concerns. The standard shall be used for planning new facilities and for monitoring proposed changes to the General Plan. The standard for local streets should be based on volume thresholds instead of level of service designations.

The LOS D standard was applied to the signalized and all-way stop-controlled intersections for the Study; however, because the General Plan does not specifically address LOS standards for unsignalized two-way stop controlled intersections, LOS E was applied as the standard for the stop-controlled intersection approaches. Improvements – such as additional stop signs, signalization, changes in phasing, or additional lanes were evaluated if operation dropped below these standards. Further, the General Plan establishes LOS E as the standard for the signalized intersection of Old Redwood Highway/US 101 North off-ramp and Lakewood Drive.

Additionally, the Town is in the process of developing design standards that will establish the number of travel lanes, together with widths for the curb-to-curb pavement measurement, right-of-way, sidewalk, trail, planter strip and parking lane for each classification of street.

**EXISTING CONDITIONS**

Based on the traffic volumes presented in the Study, most of the study intersections are operating acceptably at LOS D overall or better (or LOS E or better on approaches to two-
way stop-controlled intersections) during both the AM and the PM peak periods. Three locations were identified as operating unacceptably under current conditions, one of which is located within the Amended Project Area. Conde Lane/Johnson Street is at LOS F during the AM peak period; installation of a signal including protected left-turn phasing southbound and a right-turn overlap westbound on Conde Lane would improve this intersection to acceptable operation. LOS E operation was also identified in the Amended Project Area at the signalized intersection of Old Redwood Highway/US 101 North off-ramp and Lakewood Drive, this LOS is acceptable under the standards applied.

FUTURE CONDITIONS

Projected future development was determined based on the land use types and acreage projections established in the General Plan Housing Element Update adopted in 2004 and the Vacant/Underdeveloped Land Inventory map. For purposes of estimating the number of trips that the anticipated future development would be expected to generate, Trip Generation, 7th Edition, 2003, by the Institute of Transportation Engineers (ITE) was used in the Study. This is a standard reference used by jurisdictions throughout the country, and is based on actual trip generation studies performed at numerous locations in areas of various populations. The Study modified trip rates to accommodate for pass-by trips, internal capture trips between new housing units and new business land uses, and cumulative growth outside the Town limits. In addition, improvement projects that had been previously identified to accommodate future traffic growth and included in prior versions of the Traffic Impact fee were assumed to be complete prior to build-out.

FUTURE OPERATING CONDITIONS

Under the volumes projected for build-out and with the anticipated future infrastructure improvements described above, 9 of the 33 study intersections are expected to operate at unacceptable LOS, and require improvement. These include the following 5 intersections in the Amended Project Area:

- Old Redwood Highway/Starr Road
- Windsor River Road/Bell Road
- Old Redwood Highway/US 101 North-Lakewood Drive
- Conde Lane/Johnson Street
- Old Redwood Highway/Shiloh Road

The Study identified capacity improvements necessary to maintain acceptable operating conditions upon build-out of the Town. The following capacity improvements were identified as needed within the Amended Project Area:

- In addition to the modifications that would be made by developers to add a fourth leg on the east side of Old Redwood Highway/Starr Road, two through lanes are needed in the southbound direction on Old Redwood Highway. With these added lanes, LOS D operation could be maintained.
- Windsor River Road/Bell Road is expected to operate at LOS F on both of the stop-controlled side street approaches. Signalization of the intersection with its current
configuration and use of permitted left-turn phasing on all approaches would improve operation to LOS A during both peak periods.

- Old Redwood Highway/US 101 North at Lakewood Drive is projected to operate at LOS F during the PM peak hour under its current configuration. Acceptable LOS D operation can be achieved by providing dual left turn lanes and right-turn lanes on the Lakewood Drive approach together with re-striping the center lane on the off-ramp to allow both left turns and through movements.

- Conde Lane/Johnson Street is expected to operate at LOS F during the AM peak hour, but signalization, as indicated for existing conditions, would result in acceptable operation. As an alternative, the Town may wish to consider installing a roundabout, which would provide LOS A operation.

- Old Redwood Highway/Shiloh Road is expected to operate unacceptably during the PM peak hour under the assumed lane configuration; however, adding a right-turn overlap on either the southbound or eastbound approach would result in acceptable operation.

Projects within the Amended Project Area that were incorporated into the Traffic Fee Program include:

- Arata Lane – replace the overcrossing of US 101 in order to accommodate the additional turn lanes needed, as well as to enhance pedestrian and bicycle access
- Conde Lane/Johnson Street – install a traffic signal or roundabout
- Downtown Pedestrian Crossing – construct a new crossing of US 101 near Downtown
- Lakewood Drive – widen to provide dual left-turn lanes and right-turn lanes at Old Redwood Highway
- Old Redwood Highway – the segment from Arata Lane north to the Town Limits should be improved to meet current design standards
- Old Redwood Highway – the segment from Arata Lane to Windsor Road should be improved to meet current design standards
- Windsor River Road/Bell Road – install a traffic signal

Additionally, the following programs have been included to allow the Town to address safety and capacity issues associated with development that have not been captured in the focused analysis performed:

- ADA Compliance – curb ramps will be replaced to meet current ADA standards
- Bicycle Facilities – address bicycle access and safety issues
- Intersection Improvements – modify lane configurations and install a traffic signal or roundabout at up to three intersections; may include modification to existing signals
- Pedestrian Facilities – address pedestrian access and safety issues
- Safety Improvements – address safety issues associated with vehicular traffic
- Transit Facilities – address transit access and safety issues
REGULATORY SETTING

REGIONAL

Metropolitan Transportation Commission Regional Transportation Plan

The Metropolitan Transportation Commission (MTC) is the transportation planning authority for the nine county San Francisco Bay Area, of which Sonoma County (County) is a part. The MTC serves as the state designated regional transportation planning agency and the federally designated metropolitan planning organization (MPO). The MTC provides oversight on all transportation projects in the region and is responsible for preparing the Regional Transportation Plan (RTP).

Transportation 2035 Plan for the San Francisco Bay Area (2035 Plan), the current RTP, was finalized in April 2009 and updates the previous 2030 RTP (2005). The RTP sets forth regional transportation policy and provides capital program planning for all regional, state, and federally funded projects. In addition, the 2030 Plan provides strategic investment recommendations to improve regional transportation system performance over the next 25 years. Investments in regional highway, transit, local roadway, bicycle, and pedestrian projects are set forth in the 2035 Plan. These projects have been identified through regional and local transportation planning processes. Project recommendations are premised upon factors related to existing infrastructure maintenance, increased transportation system efficiencies, improved traffic and transit operations, and strategic expansions of the regional transportation system.

The 2035 Plan includes programs and projects that provide or contribute to a safe and well maintained transportation system, a reliable commute, access to mobility, livable communities, clean air, and efficient freight travel. Among the key elements of the new plan are a joint regional planning initiative known as FOCUS, which provides incentives for cities and counties to promote future growth near transit in already urbanized portions of the Bay Area. The plan also launches a Transportation Climate Action Campaign to reduce transportation-related greenhouse gas (GHG) emissions. In addition, a new market-based pricing system would -- with legislative authorization -- convert and expand current carpool lanes into a Regional Express Lane Network that continues to grant carpoolers and buses free access to the lanes but permits solo drivers to pay to use available space in the carpool lanes for a price. Revenue generated by the tolls would pay for the completion of the planned express lane network sooner and fund other mobility improvements, such as more express bus and rail services in the region’s most heavily traveled corridors.

The 2035 Plan also recommends that existing transportation infrastructure be utilized efficiently, while new investment is coordinated regionally. This includes new public transit service supporting existing transit centers and densification of development around existing transit infrastructure. Projects that benefit the Amended Project Area include:

- US 101 in the County from Windsor River Road to Old Redwood Highway -- widen to add an express lane in each direction and convert HOV lanes to express lanes
- Improve US 101/Arata Lane interchange in Windsor -- including new on- and off-ramps and realignment of Los Amigos Road north of Arata Lane (Phase 4)

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- Widen US 101 for HOV lanes between Steele Lane and Windsor River Road (Phase A)
- Local streets and roads maintenance
- Implement SMART commuter rail project (includes environmental, engineering, right-of-way, construction, vehicle procurement and operations)
- Regional Bicycle Program – provide capital funds to fully build-out the Regional Bikeway Network as defined in MTC’s Regional Bicycle Plan for the San Francisco Bay Area, 2009 Update
- Fund Golden Gate Transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)

**TOWN OF WINDSOR**

**Windsor General Plan**

The General Plan policies and implementation programs from the Transportation Section of the Community Development (CD) Chapter that are applicable to the proposed project (figure and table references in the policies are to the General Plan).

**Policies**

**CD-A.7 Street Design Standards.** The Town should develop design standards for streets and intersections that balance the needs of pedestrians, bicycles, and vehicles. The design standards should:

a. Minimize right-of-way and intersection dimensions to slow traffic while acknowledging the need to safely carry the traffic volumes and provide for adequate access to emergency vehicles

b. Create a comfortable and attractive walking and driving environment through the use of planting strips, street trees, and lighting standards that are of an appropriate scale and design

c. Slow traffic on connector streets and local streets within neighborhoods by calling for alignments that restrict traffic, and other techniques such as neck-downs, reduced curb radii, and roundabouts

d. Reflect functional requirements as well as a street’s unique position within Windsor

e. Include a street design system to complement the functional street classification system defined in the Circulation section of this chapter

f. Conserve scenic features such as mature trees and riparian vegetation, especially for Rural Lanes

g. Add design criteria for street crossings, signs, blinking lights, etc.
CD-D.1.1 The Town should encourage a network of interconnected connector and local streets to avoid excessive congestion on any one street and allow the safe use by motorists, pedestrians, and bicyclists.

CD-D.2 Develop guidelines for street design that meet travel demands but also create a safe and pleasant walking environment.

CD-D.2.1 The Town should revise its current street classification system that defines the function of roadways in Windsor. The conventional hierarchy or street labels (i.e., arterials, collectors, and local streets) should be replaced with a hierarchy that considers the design of the street...

CD-D.2.3 As much as possible, line streets with trees to create a more attractive, comfortable pedestrian environment.

CD-D.2.4 The Town should encourage proper planning for goods movement to commercial properties. Connector streets that provide access to commercial development shall be designed to accommodate commercial vehicles.

CD-D.2.6 The Town should establish level of service standards to define the minimum acceptable operating characteristics for intersections and streets. (The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and passengers.) A level of service D is defined as the minimum acceptable level of congestion for high volume facilities such as freeways, boulevards, and signalized intersections. This standard should apply at all these locations except at the intersection of Old Redwood Hwy./US-US 101 Northbound off-ramps/Lakewood Drive. A level of service E is tolerated at this intersection by the Town because it is a "critical" location into the Town's commercial and civic areas, in addition to being located at the main northbound off-ramp from US 101... For local streets, a more appropriate performance standard is daily traffic volume.

CD-D.3 Provide opportunities for Windsor residents, visitors and employees to circulate about town without total reliance on the automobile.

CD-D.3.1 The Town should use streets, off-street pathways and greenways for non-motorized modes of travel, including walking and bicycling. The basic framework for a trail system is illustrated in [General Plan] Figure 4-6 and is to be developed only on public rights-of-way.

CD-D.3.2 The Town should encourage higher density mixed land uses within walking distances of existing and future transit stops.

CD-D.3.3 The Town should support expansion of local bus service, consistent with funding resources, to link residences with key local destinations and should continue to provide paratransit service to satisfy needs of qualified users.

CD-D.3.4 The Town should require developers to construct, when appropriate, transit facilities including bus turn-outs shelters and benches.
CD-D.4 Require new development to pay its fair share of the costs of future transportation improvements.

CD-D.4.1 The Town should identify those transportation infrastructure improvements that are necessary to accommodate future growth envisioned by the General Plan. The cost for providing needed infrastructure should be shared by new development.

Traffic Impact Fee

Pursuant to Windsor Municipal Code Title XVI, Chapter 6, Article 1, Traffic Impact Fee, the Town has established a traffic impact fee (TIF) to finance public facilities necessary to implement the goals and objectives of the Windsor General Plan, as well as to mitigate impacts of future development on the Town. This fee requires each development to pay its fair share toward the construction and acquisition costs of these public improvements. The TIF fee would apply to the proposed project.

Old Redwood Highway Vision Plan

The ORH Vision Plan, adopted in July 2006, focuses on the development potential and land use for Old Redwood Highway near the northern Town limit. The ORH Vision Plan provides guiding principles for future development and redevelopment of the northern Windsor area along Old Redwood Highway in the proposedAdded Area. Transportation guidelines provided by this plan include integration of creative parking solutions, a prohibition on parking along Old Redwood Highway (US 101), integration of internal gridded circulation patterns for larger parcels north of Arata Lane, and requirement for T intersections crossing Old Redwood Highway.

Shiloh Road Vision Plan

The Shiloh Road Village Vision Plan is a conceptual plan for mixed-use development on Shiloh Road, east of Highway 101. The plan encompasses a 79-acre area with the purpose of establishing a traditional neighborhood at the southern boundary of Windsor and incorporates New Urbanist principles, such as narrow grid pattern streets, a transportation system oriented around bike and pedestrian access, a diversity of housing types and land uses, a neighborhood commercial center with apartments above first-story retail establishments, and the integration of public space into the neighborhood fabric. The Shiloh Road Vision Plan contains twenty-one Guiding Principles and nine Design Guidelines to carry out the vision, including a street grid network, safe movement of traffic, a secondary circulation system, and access to Old Redwood Highway.

Windsor Bicycle and Pedestrian Plan

Principal Goal

To develop and maintain a comprehensive countywide bicycle and pedestrian transportation system, which includes projects, programs, and policies that work together to provide safe and efficient opportunities for bicyclists and pedestrians to access public transportation, school, work, shopping, services, recreation and residences.
Objectives

1.0 The Countywide Bicycle and Pedestrian Network: Establish a comprehensive countywide bicycle and pedestrian transportation system.

Bicycle-specific policies

1.6 Consider the needs of bicyclists of all types (commuters, recreational riders, children, and families) in planning, developing, and maintaining a bikeway network that is safe and convenient.

1.7 Make the development of a Class I multi-use pathway along the SMART right-of-way a high priority, independent of the re-establishment of rail and transit operations.

Pedestrian-specific policies

1.8 Require new development to provide safe, continuous and convenient pedestrian access to jobs, shopping and other local services and destinations where feasible.

1.9 Create spaces and activities that invite pedestrian use and optimize the experience of walking with amenities such as landscaping, public art, seating and drinking fountains.

1.10 Focus on improving safety of pedestrian crossings of roadways and highways, especially in high activity pedestrian areas and districts.

Pedestrian-specific objectives

2.0 Design - Utilize accepted design standards and “best practices” for the development of bicycle and pedestrian facilities.

3.0 Multimodal Integration - Develop and enhance opportunities for bicyclists and pedestrians to easily access public transit.

4.0 Comprehensive Support Facilities - Encourage the development of comprehensive support facilities for walking and bicycling.

5.0 Education and Promotion - Develop programs and public outreach materials to promote bicycle and pedestrian safety and the positive benefits of bicycling and walking.

6.0 Safety and Security - Create countywide pedestrian and bicycle networks that are, and are perceived to be, safe and secure.

7.0 Land Use - Encourage smart growth land use strategies by planning, designing and constructing bicycle and pedestrian facilities in new development.

9.0 Maintenance - Maintain and/or improve the quality, operation, and integrity of bicycle and pedestrian infrastructure.

ENVIRONMENTAL IMPACTS

METHODOLOGY

The Amendment does not propose to intensify land uses beyond those planned for in the General Plan, or to develop specific traffic-generating projects in the Amended Project Area; therefore, a quantitative analysis of intersection-specific traffic impacts due to implementation of the Amendment in the context of this programmatic EIR was not warranted. The proposed Amendment is assessed against the recent traffic study prepared...
for the Traffic Impact Fee Update, which analyzed long-term cumulative conditions based on General Plan build-out. In addition, this section considers the effect of redevelopment activities on existing and planned pedestrian and transit services at a programmatic level of analysis.

**Thresholds of Significance**

Impacts to the transportation system are considered significant, if redevelopment activities would result in development that could cause:

- A significant increase in projected traffic volumes over current conditions or beyond those anticipated in the General Plan
- A deterioration of transit or pedestrian services and/or infrastructure

**Project Components**

Improvements to Amended Project Area public infrastructure are intended to alleviate traffic congestion and improve public safety, remove costly impediments to development, and upgrade infrastructure to contemporary standards to stimulate private development. The proposed traffic/circulation improvement projects include, but are not limited to:

- Traffic capacity projects and new streets
- New curbs, gutters and sidewalks where they do not exist or where broken curbs, gutters and sidewalks require replacement
- Installing street trees and shrubs
- Constructing both decorative and handicapped-accessible crosswalks
- Constructing new medians with landscaping
- Installing street furniture, such as covered bus stops, bike racks, lighting, public bulletin boards and murals
- Improve area lighting by increasing the number of luminaries, increasing the wattage of individual streetlights, or adding pedestrian streetlights

**Impacts of the Proposed Project**

*Impact 6.10-1 Redevelopment activities and projects could result in increased traffic in the Amended Project Area. This would be a less-than-significant impact.*

The proposed Amendment is intended to remove existing barriers to planned development, and provide improved roadway infrastructure in the Amended Project Area. Traffic increases on Amended Project Area roadways would result from infill development of vacant and underutilized properties within the Amended Project Area. Development in the Amended Project Area would add traffic to area roadways such as Windsor Road, Windsor River Road, Old Redwood Highway, and Shiloh Road. All land use and zoning in the Amended Project Area is consistent with the General Plan land use designations, and no new development beyond that identified in the Traffic Fee Program Study is anticipated as barriers to General Plan build-out are removed by redevelopment activities. The Town has identified the transportation projects necessary to accommodate this anticipated
development, and has identified funding for all necessary improvements – as a part of the Traffic Fee Program.

According to the Traffic Fee Update Study, all intersections, as mitigated by the Fee Program, will operate at LOS D or better at General Plan build-out. As development proceeds in the Amended Project Area, localized circulation impacts would be addressed on a project-specific level, and any decreases in LOS related to specific developments will be required to be mitigated consistent with Town policy, and cumulative conditions mitigated through the Traffic Fee Program, at the time a project is proposed.

The Town monitors roadway conditions and determines when improvements are warranted per Town standards and criteria, and includes such improvements in their Capital Improvements Program (CIP), as appropriate. As site-specific development proposals are identified and submitted to the Town for permits, the Town has procedures and requirements in place to analyze operational impacts and impose mitigation measures or fees as required. The Amendment would provide tax increment funding for infrastructure projects that would minimize the impact of infill development in the Amended Project Area consistent with adopted plans. Whereas the Amendment would provide further funding assistance for the implementation of transportation projects within the Amended Project Area, and assist in bringing existing properties up to current street standards, the Amendment would have a less-than-significant impact on traffic volumes and intersection congestion.

**Mitigation**
None required

**Impact 6.10-2 Redevelopment activities and projects could result in increased demands on pedestrian, bicycle, and transit access and operations. This would be a less-than-significant impact.**

Current conditions in the Amended Project Area include unimproved roadways and discontinuous sidewalks and bikeways. As development occurs in the Amended Project Area, there would be an increased demand for pedestrian, transit, and bicycle facilities.

All new development in the Amended Project Area will be required to undergo review by the Planning and Public Works Departments to ensure compliance with the Town of Windsor Zoning Ordinance (Zoning Ordinance) and local design criteria, and that adequate pedestrian, transit, and bicycle facilities are provided. The Amendment specifically includes projects and programs that would improve pedestrian, bicycle, and transit access by providing curbs, gutters, sidewalks, bike routes, bus stops, and streetscape improvements to enhance pedestrian access and cyclist safety. The Amendment would therefore have a beneficial effect on bicycle and pedestrian facilities within the Amended Project Area by assisting in the construction of the bikeway, transit, and pedestrian enhancements. The Amendment would have a less-than-significant impact on pedestrian/cyclist safety and access to transit facilities.

**Mitigation**
None required
CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 6.10-3 Redevelopment activities could remove barriers to development, resulting in cumulative increases in traffic and Downtown parking demand in the Amended Project Area. This would be a less-than-significant impact.

The Amendment is intended to remove existing barriers to planned development. The cumulative traffic increase anticipated for Amended Project Area roadways and Downtown parking demand would result from infill development of vacant and underutilized properties in the vicinity, and future growth within the Town and surrounding unincorporated area. Future development in the vicinity will add cumulative traffic to area roadways such as Old Redwood Highway, Windsor River Road, Shiloh Road, and Windsor Road.

The Town has identified the transportation projects necessary to accommodate cumulative growth through General Plan build-out to maintain adequate LOS at all intersections. According to the Traffic Fee Update Study, all roadway intersections will operate at LOS D or better at General Plan build-out with construction of the projects identified as part of the Fee Program. The Downtown Parking Study determined that there would also be adequate parking available to serve future Downtown parking needs. Regional cumulative congestion on US 101 is being addressed through the addition of HOV lanes within the Town and additional funding of commuter transit in the 2035 RTP.

All land uses in the Amended Project Area must be consistent with the General Plan land use designations. No development is proposed that would exceed development levels anticipated in the General Plan. The Town monitors roadway conditions and determines when improvements are warranted per Town standards and criteria, and includes such improvements in its CIP, as appropriate. As site-specific development proposals are identified and submitted to the Town for permits, the Town has procedures and requirements in place to analyze operational impacts and impose mitigation measures and fees as required. The Amendment would provide tax increment funding for infrastructure projects that would minimize the impact of cumulative development consistent with adopted plans, and assist Downtown developers in financing on-site parking. Therefore, the Amendment would have a less-than-significant impact on cumulative traffic volumes and Downtown parking demand.

Mitigation

None required
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