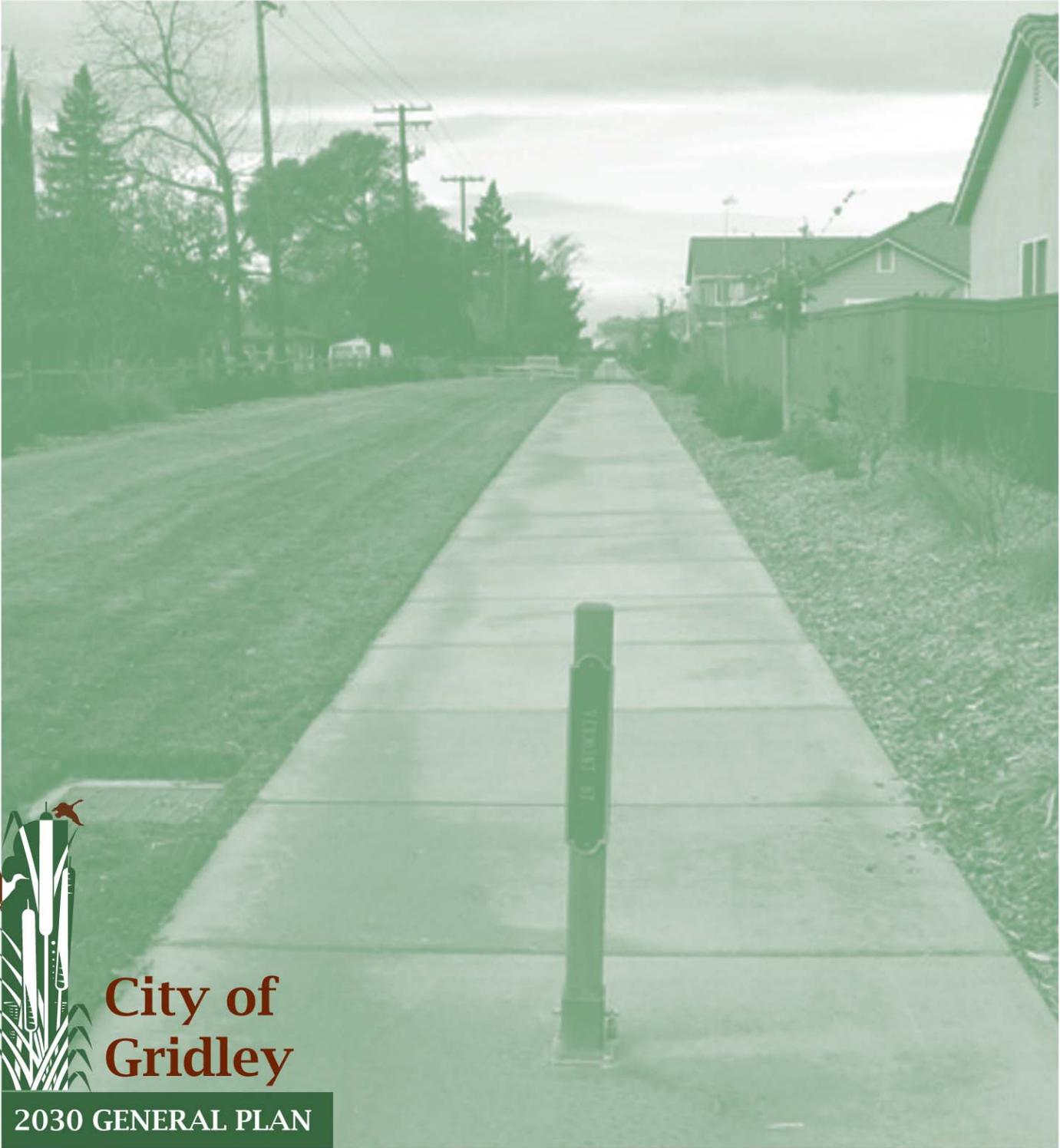


Safety



City of  
Gridley

2030 GENERAL PLAN



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# INTRODUCTION

The Safety Element outlines key safety issues facing Gridley, including seismic, flooding, fire, and air quality. Goals and policies in this Element describe the City's approach to minimizing these hazards and maintaining a safe environment for residents.

The Safety Element is written to satisfy the requirements of California planning law, and is a mandatory component of the City's General Plan. Government Code section 65302(g) presents a list of safety issues that, at a minimum, must be covered by the Element if they pertain to conditions in the city. The topics addressed in this Element include:

Seismically induced conditions including ground shaking, surface rupture, ground failure, tsunamis, seiche, and dam failure;

- ✓ Slope instability leading to mudslides and landslides;
- ✓ Subsidence, liquefaction, and other geologic hazards;
- ✓ Flooding;
- ✓ Hazardous Materials;
- ✓ Fire risk;
- ✓ Emergency response and routes; and,
- ✓ Air quality.

The seismic safety element was one of the first mandatory general plan elements. However, California law has changed over time, and those issues previously addressed in seismic safety elements are now to be incorporated into the safety element. However, seismic safety is not a major issue for Gridley, compared to other parts of California.

Gridley was a participant in the development of the Butte County Multi-Jurisdictional Hazard Pre-Disaster Mitigation Plan and adopted this plan in March of 2007. This plan is hereby incorporated by reference.

## GUIDING PRINCIPLES

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Statements from Gridley’s General Plan Guiding Principles relevant to safety issues include:

- ✓ Children in Gridley should be able to safely and conveniently walk to school.
- ✓ For safe and convenient travel, we need short blocks, connectivity, frequent through streets, extension of the historic grid, and ample on- and off-street pedestrian and bicycle pathways.
- ✓ For safe and convenient travel, we need destinations, like schools, parks, and shops, to be oriented to, and blended in with our neighborhoods.
- ✓ Our community should grow without having traffic, air quality, and noise problems that would sacrifice our small-town character. In the long run, this requires pedestrian, bicycle, and public transit to be considered in land use and transportation planning on an equal footing with vehicular travel.

Although the above items are safety-related, these specific issues are, for the most part, addressed in other elements of this General Plan.

## RELATIONSHIP TO OTHER ELEMENTS

The Safety Element contains goals and policies to reduce the dangers posed by various hazards. These goals and policies will, in many cases, relate to goals and policies contained in other General Plan Elements, including the Land Use Element, Conservation, and Public Facilities Element.

For example, Conservation Element policies related to water resource protection, agriculture, and the natural environment may lead to land use policies that direct development away from areas that pose significant risk of flooding. Another example is a well planned, highly connected, and well maintained circulation network provided for in the Circulation Element that allows for multiple routes to a given location for emergency services personnel and evacuation in the event of a natural disaster, thereby supporting goals and policies in the Safety Element.

Air quality is addressed in this Element, but most policies that would address air quality issues are included in the Land Use, Circulation, Community Character, Open Space,

***Safety Element***

Public Facilities, and Conservation Elements. The Land Use Element describes how land use patterns will be used to reduce automobile travel, reducing emissions. Community Design Element and Energy Element policies on energy efficiency also have the potential to reduce emissions and improve air quality. Low impact development and natural drainage policies in the Conservation and Open Space Element describe the steps that the City will take to maintain and improve water quality.

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## GEOLOGIC HAZARDS AND SOIL CONDITIONS

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Policies related to geologic hazards and soil conditions relevant to Gridley are primarily linked to seismic hazards, which, in turn, are primarily caused by earthquakes. The State of California has identified five primary issues of critical seismic concern to be addressed in the Safety Element:

1. Surface ruptures;
2. Ground shaking;
3. Ground failure;
4. Tsunamis; and
5. Seiches.

All of these hazards have the potential to cause loss of life or damage to property.

Earthquakes, the primary cause of seismic hazards in Gridley, occur on fault lines in the earth's crust. They are the primary agent for seismic activity and vary in intensity, location, magnitude, and duration, etc. Their effects may be felt either locally or regionally. An earthquake occurs when there is a rupture of rock or breakage of earth material on opposite sides of a fault as a result of accumulation of stress in the material. This movement or breakage releases energy which moves outward from the epicenter in the form of seismic waves.

These seismic waves do not disperse in a uniform pattern. They travel at different rates of speed depending upon the type of material they are passing through. Generally, the more solid or dense the material, the less susceptible it is to seismic waves. Conversely, the alluvium of the Great Valley would be highly conductive to seismic wave passage due to its loose unconsolidated nature.

Within the State of California, there are many faults that have been identified which have the potential for earthquake activity. Identification has been mainly by two methods:

observing the resultant land forms or from historical records. However, most faults within the state are considered to have had no recent activity.

An active fault is one that has moved in recent geologic time (within approximately the past 10,000 years) and which is likely to move again in the relatively near future. In California, these faults are designated under the Alquist-Priolo Earthquake Fault Zoning Act of 1972. An inactive fault is one which shows no evidence of movement in recent geologic time and shows no evidence of movement in the relatively near future. The nearest active fault to the Gridley Study Area is the Cleveland Hills Fault, located at Lake Oroville.

## **FAULT DISPLACEMENT**

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Fault displacement occurs when the earth on one side of a fault line moves in relation to the earth on the other side of the fault line. Displacement may be as little as several inches to many feet. Movement may occur in several directions; If movement is some distance below the earth's surface, displacement may not be evident at the surface. No known active faults are present in the Gridley Study Area, and Gridley is not threatened by fault displacement.

## **SURFACE RUPTURE**

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Surface rupture is fault displacement that is manifested on the surface of the earth. Its effects may also be felt below the surface with changes in water table or soil or rock strata. Most, if not all, major California earthquakes have been accompanied by some degree of surface rupture. Surface rupture is important to planning because structures built across fault lines may be torn apart or otherwise destroyed when a surface rupture occurs underneath or immediately adjacent to the structure. Since, no known active faults are present in the Gridley Study Area, Gridley is not threatened by surface rupture.

## **GROUND SHAKING**

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Ground shaking is the oscillation or vibration of earth materials resulting from an earthquake. It is the most commonly experienced earthquake phenomenon because it may be felt at some distance from the epicenter. Ground shaking has the greatest impact on areas underlain by loose, water saturated, thick sediments such as those located within the Gridley Study Area during the wet season.

**Safety Element**

Damage from ground shaking is caused by the transmission of earthquake vibrations from the ground into building structures. The resultant damage is related to structural design, type of construction, and the intensity, period, and duration of the ground motion.

Ground shaking has been the dominant form of seismic activity affecting the Study Area. The effects of ground motion are measured by the intensity of the motion felt (Modified Mercalli Scale), whereas magnitude measures the amount of energy released when an earthquake occurs. The Gridley vicinity is not believed to have experienced ground shaking at a Modified Mercalli Scale level of VII or above, the level at which damage to unreinforced masonry buildings would be expected, during the period of 1800 through 1996<sup>1</sup>.

## GROUND FAILURE

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Ground failure occurs when the stresses in the ground exceed the resistance of earth materials to deformation or rupture. Instability comes about when stresses are increased by natural or man-made causes, such as by earthquakes, fills, and ground water withdrawal. There are several types of ground failure:

1. **Liquefaction** – occurs when water in unconsolidated sand and other granular materials is subjected to pressure usually caused by ground motion. The earthquake induced deformation transforms a stable granular material into a fluid in which the solid particles are in a virtual state of suspension, similar to quicksand. The effect is that ground literally flows out from under building.
2. **Lateral spreading** – is the squeezing of soft, saturated clays, which results in a rapid or gradual loss of strength in the foundation materials, so that structures built upon them gradually settle or breakup as the soil flows out laterally.
3. **Landslides** – can occur on slopes that are virtually flat and in soil depths ranging from a few feet to several hundred feet. Slippage may also occur on subsurface inclines. Landslides do not necessarily require a steep slope on which to occur, particularly during earthquakes
4. **Differential settlement** – is the non-uniform compaction of loose granular soils that has water in it freed by liquefaction and forced to the surface. As the water is removed from the subsurface, the ground settles. Differential settlement may also

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<sup>1</sup> California Division of Mines and Geology. 1996. *Probabilistic Seismic Hazard Assessment for the State of California*. California Department of Conservation, Sacramento, CA. In cooperation with the U.S. Geological Survey, Washington, D.C.

occur through simple compaction of areas underlaid by sand or infill areas in former sloughs and streams.

5. **Subsidence** – occurs usually in areas where there has been withdrawal of subsurface fluids over a long period of time. Normally, subsidence covers extensive areas as a result of activity by man.
6. **Erosion** – is the wear and removal of material from one site and its deposition in another.

The liquefaction potential of soils in the Gridley area is generally moderate. Gridley is generally at low risk for landsliding based on the low topographical relief in the area. The risks posed by other hazards related to ground failure, such as differential settlement, subsidence, and erosion, can be addressed through appropriate soil investigation prior to construction, as specified in the City’s goals and policies.

## OTHER SOIL LIMITATIONS

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In addition to the seismic soil hazards described above (ground failure, ground shaking, surface rupture, and fault displacement), soils may have other physical limitations which affect their suitability for various uses, including urban development. Unstable soils (such as soils on steep slopes) and expansive soils (soils which expand to occupy a larger volume when wet) may require engineering or building techniques in order to ensure that they do not cause damage to structures.

## TSUNAMIS AND SEICHES

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Tsunamis are commonly called “tidal waves.” Tsunamis are water waves with a long distance from crest to crest, that are seismically or tectonically induced in the oceans. Their principal impact is felt by coastal areas. Seiches are periodic oscillations of water levels in basins that occur as the result of wind and weather changes, landslides, and seismic activity. Seiches may occur in harbors, bays, rivers, or other bodies of water. Gridley is not at risk for tsunamis or seiches based on its inland location and the absence of nearby large bodies of water.

**Safety Element**

SAFETY GOAL 1:	To reduce risks to people and property from geologic hazards and soils conditions.
<b>SAFETY POLICY 1.1</b>	New development shall implement state and local building code requirements, including those related to structural requirements and seismic safety criteria in order to reduce risks associated with seismic events and unstable and expansive soils.
<b>SAFETY POLICY 1.2</b>	New developments that could be adversely affected by geological and/or soil conditions shall include project features that minimize these risks.
<b>SAFETY POLICY 1.3</b>	The City will not allow new water well sites to be located in areas where subsidence could occur as a result of water well operation, or where the potential for subsidence could increase as a result of operation of a water well.
Safety Implementation Strategy 1.1	The City will continue to enforce the most recent statewide building code requirements.
Safety Implementation Strategy 1.2	The City will require geotechnical evaluation and recommendations before development or construction of buildings meant for public occupancy in geologic hazard areas may proceed. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

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## FLOOD HAZARDS

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Flooding is not foreseen as a significant hazard for Gridley properties. Federal Emergency Management Agency Flood Insurance Rate Maps prepared in 2008 do not place the City or its Study Area into a 100-year floodplain. The City of Gridley is approximately 1.3 miles west of the 100-year floodplain (as mapped by FEMA) of the Feather River and the levees which exist there (Exhibit Safety-1).

When 200-year floodplain maps for the Gridley area become available from the Department of Water Resources, they must be analyzed to determine whether any areas planned for development under the General Plan are within the 200-year floodplain. If the possibility of flooding does exist from flood levels occurring at intervals of 200 years or

less, then such measures as necessary must be taken to meet the State law requirements for development in Flood Hazard Zones. Gridley and likely evacuation routes (SR 99, SR 70, and SR 162) are located in an area subject to inundation following partial or total failure of Oroville Dam (Exhibit Safety-2).

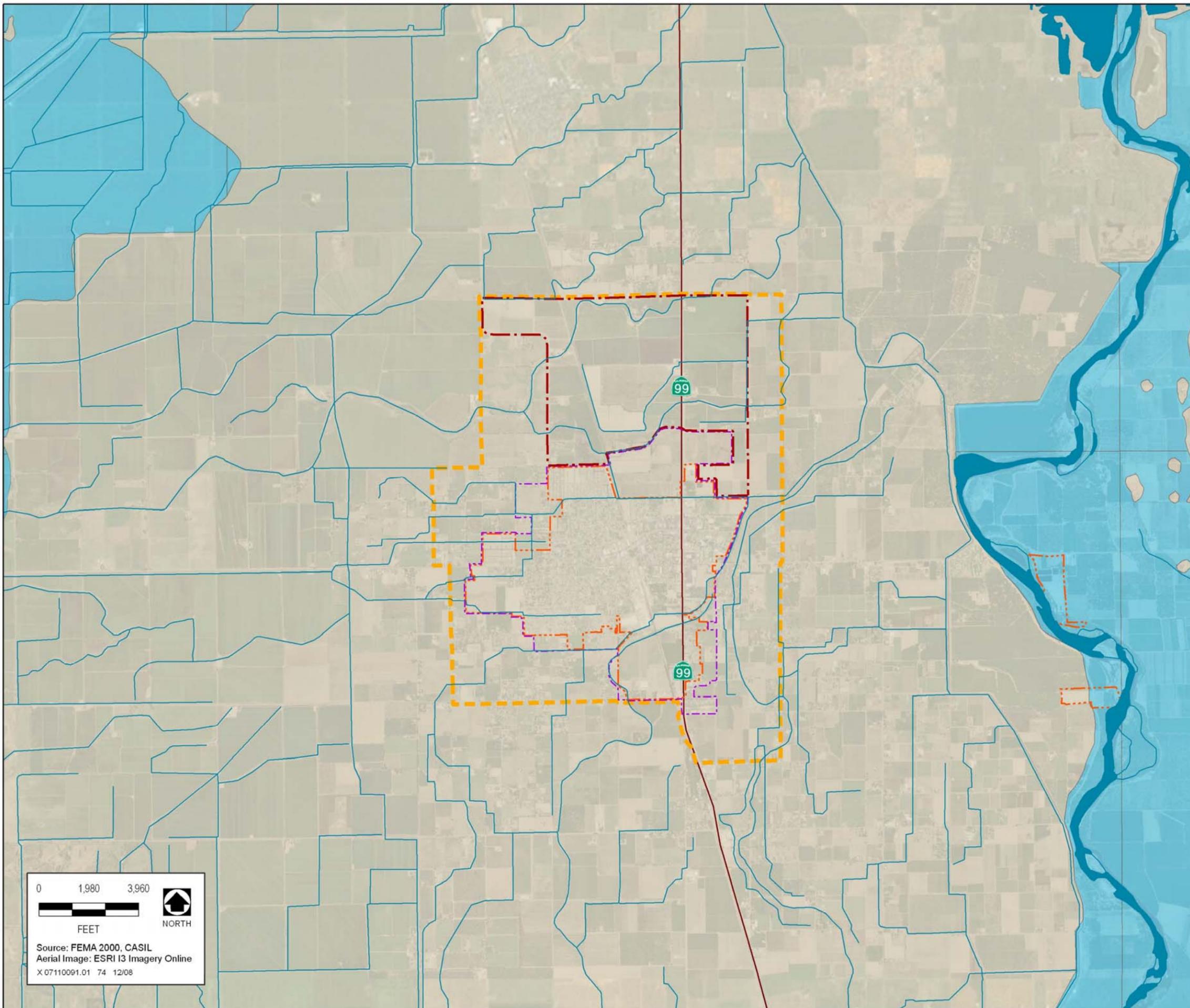
Please refer to the Open Space Element and Public Facilities Elements, which discuss drainageways and drainage infrastructure.

<b>SAFETY GOAL 2:</b>	<b>To reduce risks to people and property from flooding.</b>
<b>SAFETY POLICY 2.1</b>	The City will use the best available flood hazard information and mapping from regional, state, and federal agencies and use this information to inform land use and public facilities investment decisions.
<b>SAFETY POLICY 2.2</b>	The City will regulate development within floodplains in accordance with state and federal requirements.
<b>SAFETY POLICY 2.3</b>	New development shall provide an evaluation of potential flood hazards and demonstrate compliance with state and federal flood standards prior to approval.
<b>Safety Implementation Strategy 2.1</b>	<p>The City will update the General Plan, if necessary, using data to be made available by the Department of Water Resources and the Central Valley Flood Protection Board. The City will update the Land Use Element, Conservation and Open Space Element, Safety Element, and other elements, if necessary, to ensure adequate flood protection is provided for areas anticipated for urban development.</p> <p>Policies and implementation measures in the General Plan related to flood protection will integrate data from the State Plan of Flood Control. For flood-related revisions to the Safety Element, the City will consult with the Central Valley Flood Protection Board and local flood protection agencies serving the Gridley vicinity, consistent with State law.</p> <p>Following flood-related updates to the General Plan, the City will revise applicable development standards, including the Zoning Code, for consistency on flood protection policies. Subdivision approvals, development agreements, permits, and other City entitlements will incorporate these revised City policies and regulations. The City will regulate development per state and federal law and according to the presence of 200-year flood protection, or according to adequate progress towards providing 200-year flood protection.</p> <p>The City will cooperate with Sutter Butte Flood Control Agency, state, and federal agencies, if necessary, to fund on an equitable basis the maximum level of flood protection that is practical, with a goal of achieving at least 200-year flood protection.</p>

# Safety-1 Floodplain

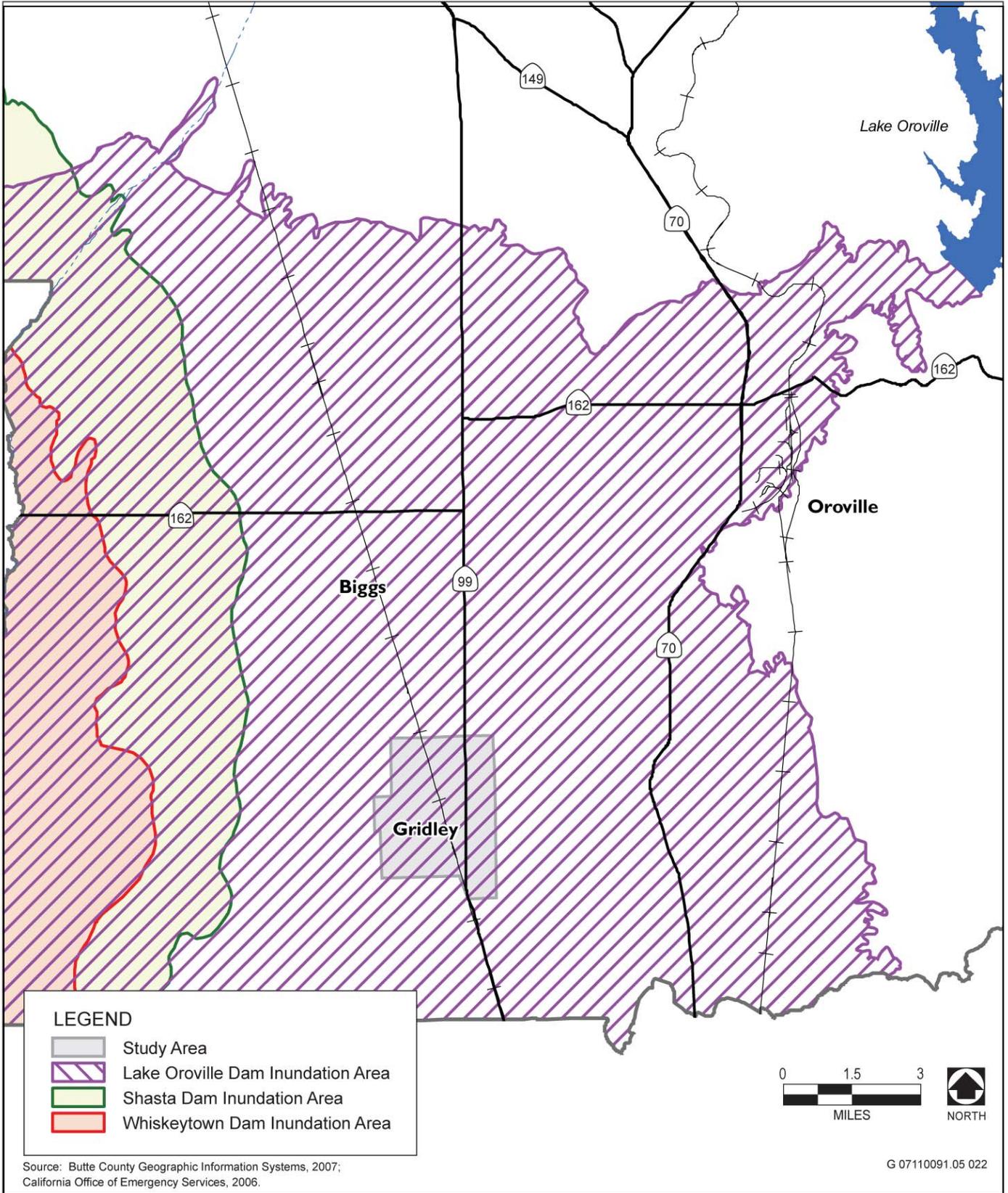
## LEGEND

-  Study Area
-  Planned Growth Area
-  Sphere of Influence
-  City Boundary
  
-  Surface Water
-  Water Ways
  
- Floodplain Zone**
-  100-year
-  Outside 100 and 500-year



0 1,980 3,960  
FEET  
NORTH  
Source: FEMA 2000, CASIL  
Aerial Image: ESRI 13 Imagery Online  
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**Exhibit Safety-2. Dam Inundation Areas**

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## HAZARDOUS MATERIALS

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A hazardous material is defined as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment with improper treatment, storage, transport, or disposal.

Hazardous waste is the subset of hazardous materials that has been abandoned, discarded, or recycled and is not properly contained, including contaminated soil or groundwater with concentrations of chemicals, infectious agents, or toxic elements sufficiently high to increase human mortality or to destroy the ecological environment. Hazardous materials and wastes can include those used or produced in industrial processes, as well as some chemicals used for cleaning and other types of everyday use.

The transportation of hazardous wastes creates a risk of spillage or other release that could injure persons or damage structures on lands near transportation routes. . The transport of hazardous cargo occurs through Gridley along State Route (SR) 99 and the Union Pacific Railroad (UPRR). A wide range of hazardous cargo is regularly transported along these routes. Types of hazardous cargo regularly transported out of, into, and through Gridley by freeway or railroad include flammable liquids, corrosive materials, compressed and/or poisonous gases, explosives, flammable solids, and irritating materials.

At the federal level, the principal agency regulating the generation, transport, and disposal of hazardous substances is the U.S. Environmental Protection Agency (EPA), under the authority of the Resource Conservation and Recovery Act (RCRA). EPA has delegated much of the RCRA requirements to the California Department of Toxic Substances Control (DTSC). California has been granted primary oversight responsibility by EPA to administer and enforce hazardous waste management programs. State regulations have detailed planning and management requirements to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. In addition to DTSC, the State Water Resources Control Board (SWRCB), and the Integrated Waste Management Act also regulate the generation and disposal of hazardous materials.

The U.S. Department of Transportation (USDOT) regulates transportation of hazardous materials between states. The USDOT Federal Railroad Administration (FRA) enforces the Hazardous Materials Regulations, which are promulgated by the Pipeline and Hazardous Materials Safety Administration for rail transportation. Some state agencies

**Safety Element**

have the responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies, which include the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous-waste haulers for transportation of hazardous waste on public roads.

The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for 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.

The Butte County Department of Public Health, Environmental Health Division is the certified unified program agency (CUPA) for all cities and unincorporated areas in Butte County. The CUPA conducts permitting and inspection of businesses that handle hazardous materials or generate hazardous waste.

<b>SAFETY GOAL 3:</b>	<b>To protect people and resources from hazards posed by hazardous materials, including their extraction, manufacture, storage, use, disposal, and transport.</b>
<b>SAFETY POLICY 3.1</b>	The City will require that hazardous materials are used, stored, transported, and disposed in a safe manner and in compliance with local, State, and federal safety standards.
<b>SAFETY POLICY 3.3</b>	The City will require buildings and sites proposed for development to be investigated for hazardous materials or hazardous waste and steps taken to protect public and environmental health, if necessary, prior to project approval.
<b>SAFETY POLICY 3.4</b>	The City will restrict the location of any uses or facilities that use solvents or other toxic or hazardous materials to locate with safe distance from residences, medical facilities, schools, commercial uses, and employment uses, and/or prepare a hazardous substance management plan to ensure against the possibility of contamination.
<b>SAFETY POLICY 3.5</b>	The City will limit the transport of hazardous materials to designated routes, consistent with County, state, and federal requirements.
<b>SAFETY POLICY 3.6</b>	Developments proposed on farmland or former farmland shall analyze and mitigate, if necessary and prior to occupation, residual agricultural chemicals that may be present on-site.

<b>SAFETY POLICY 3.7</b>	The City will review development requests and require that any airborne, waterborne, windborne, and other hazardous materials issues are fully disclosed, analyzed, and mitigated to ensure against any risk relative to any nearby planned or existing land uses and their users.
Safety Implementation Strategy 3.1	The City will maintain and update a list of hazardous sites, buildings, and uses in the Sphere of Influence or use databases that track the location of hazardous materials sites, buildings, and similar features. The City will use updated lists to evaluate and condition development, as necessary, to protect environmental and public health.

# FIRE RISK

The City lies in an area of low wildfire risk, according to the Butte County Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan.<sup>2</sup>

Fire hazard areas within the Study Area include brushy areas not under cultivation, vacant lots or fields of the Study Area, buildings with inadequate electrical or, heating systems, buildings with inadequate fire separation, and structures used for storage of flammable or explosive materials. Fires within the Study Area are mainly the result of faulty construction or carelessness.

See also the Public Facilities Element, which includes standards for water pressure for fighting fires, fire sprinklers, fire suppression services, and related topics.

SAFETY GOAL 4:	<b>To reduce risks to people and structures from fires.</b>
<b>SAFETY POLICY 4.1</b>	The City will require setbacks, ignition resistant building materials, or other measures to reduce exposure to potential wildfires in areas designated for natural open space preservation, based on California Department of Forestry and Fire Protection recommendations and Maintenance of Defensible Space Measures, as appropriate.
<b>SAFETY POLICY 4.2</b>	The City will consult with fire protection service providers in reviewing development proposals. Development proposals will include City conditions that respond to concerns of fire protection service providers.

<sup>2</sup> Butte County. Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan. March 2007.

**Safety Element**

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Safety Implementation Strategy 4.1	The City will prepare and maintain a list of buildings that could represent fire hazards, including those that were constructed prior to requirements for fire-resistant construction materials, sprinklers, and other fire safety systems. The City will explore opportunities to collaborate with property owners to retrofit such buildings, as feasible, to reduce fire risk.
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## EMERGENCY ROUTES AND RESPONSE

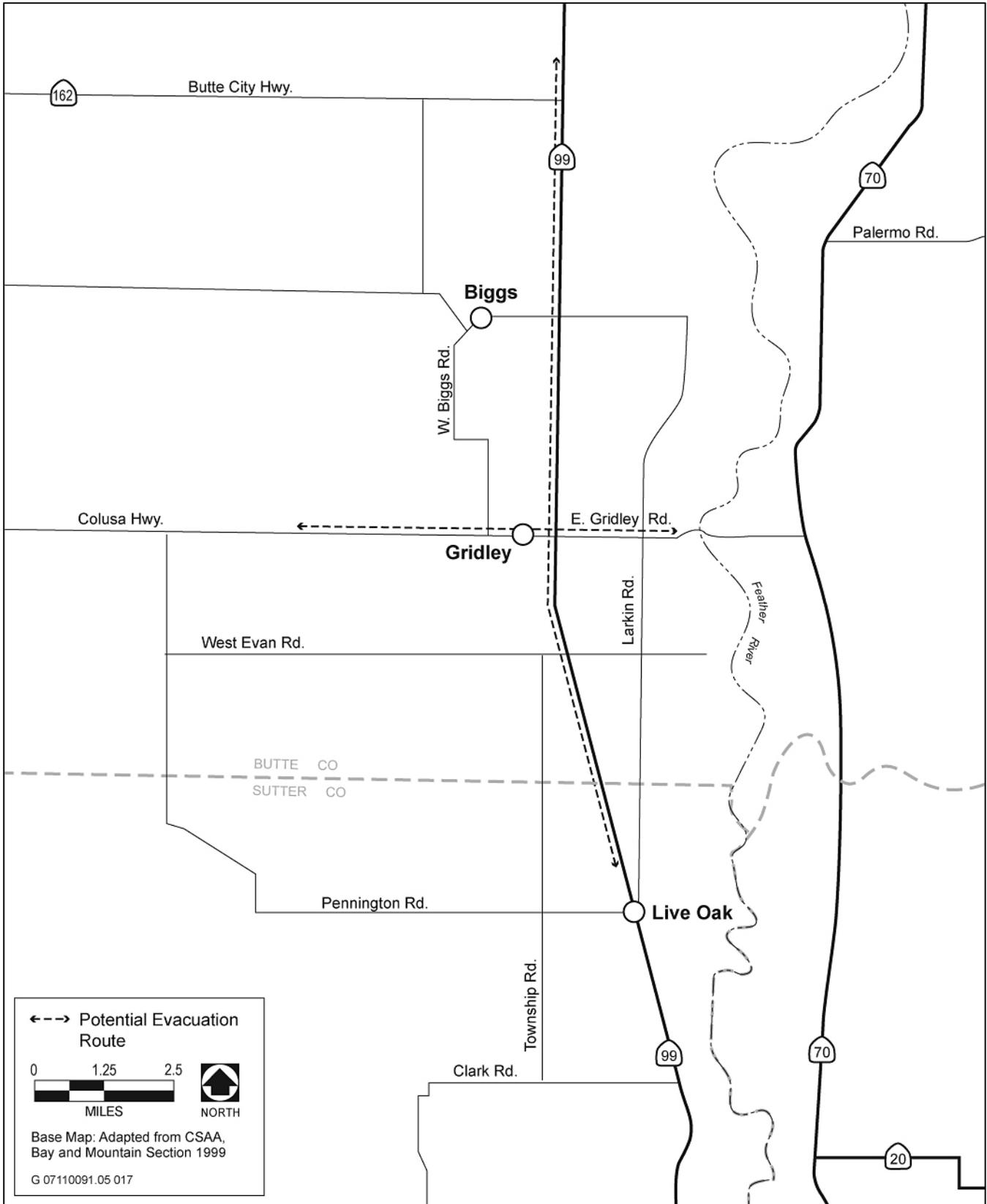
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No amount of planning or preparation can avoid all emergency situations. Gridley bears a risk of being affected by a variety of natural and human-caused disasters. Citizens and first responders must be prepared to react to such an emergency. Please refer to the Public Facilities Element, which discusses fire suppression and emergency response, as well as police services.

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<b>SAFETY GOAL 5:</b>	<b>To minimize the loss of life and damage to property from natural and human-caused hazards by ensuring adequate emergency routes and response.</b>
<b>SAFETY POLICY 5.1</b>	New developments and City investments shall be consistent with the information provided in the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan.
<b>SAFETY POLICY 5.2</b>	The City will ensure the adequacy of disaster response and coordination with Butte County and the ability of individuals to survive disasters.
<b>SAFETY POLICY 5.3</b>	The City will ensure that populations requiring special assistance are included in disaster planning and preparedness.
<b>SAFETY POLICY 5.4</b>	The City will identify and maintain, in consultation with the Butte County Office of Emergency Services, evacuation routes and operational plans for relevant local hazards (Exhibit Safety-3).
<b>SAFETY POLICY 5.5</b>	The City will promote public education and awareness regarding what to do, where to go, and how to evacuate in the event of a catastrophic disaster, such as wildfires, earthquakes, or toxic material spills.
<b>SAFETY POLICY 5.6</b>	The City will require development and maintenance of a road system that provides adequate access for emergency equipment.

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**Exhibit Safety-3. Potential Evacuation Routes**

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Safety Implementation Strategy 5.1	The City will, in consultation with the Butte County Office of Emergency Services, implement and periodically update disaster plans, including the City's Emergency Operations Plan, to meet federal, State, and local emergency requirements. Included in this work will be the identification and planning for evacuation routes for dam failure and flooding that may affect existing developed areas of the City, as well as planned new growth areas.
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## AIR QUALITY AND CLIMATE CHANGE

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Air pollution affects human health, harms the natural and the built environment, damages crops, and changes the climate of the earth. Air pollution can have local, regional, and global sources and effects.

The achievement of air quality goals for any community is mostly dependent on implementation of policies that establish land use patterns, guidelines for development, and transportation systems to allow for travel other than by vehicles. The location of highways, railroads, industries, and other sources of air emissions in relation to houses, schools, and other sensitive land uses is an important consideration in land use planning.

The General Plan addresses the City's land use, transportation, and design policies, which address local, regional, and global air quality challenges. Policies and implementations strategies in the City's Land Use, Community Character, Circulation, Open Space, and Conservation Elements address air quality issues. This Safety Element includes other air quality related policies that are not already indirectly addressed in the Land Use, Circulation, Community Character, or other elements.

Toxic air contaminants (TACs) are airborne substances that can cause acute (short-term) and chronic (long-term) health problems, including cancer. TACs include variety of substances from many different sources, such as gasoline stations, highways and railroads, dry cleaners, industrial operations, power plants, and painting operations. The effects of TACs are mostly experienced locally (close to the source).

Particulate matter (dust) and ozone ("smog") can also have adverse human health effects. The Gridley area exceeds California ambient air quality standards for concentrations of these pollutants, and is classified as nonattainment for ozone and particulate matter of less than 2.5 and 10 micrometers in diameter (PM2.5 and PM10).<sup>3</sup>

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<sup>3</sup> Please refer to the California Air Resources Board web site for additional information: <http://www.arb.ca.gov/desig/adm/adm.htm>.

In addition, emissions of greenhouse gases (GHGs) could have catastrophic impacts related to flooding, habitat suitability, agriculture, and the economy. The primary GHGs of concern include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated compounds. GHGs emitted from locations around the world contribute globally to climate change.

The California Global Warming Solutions Act (AB 32) was passed in September 2006. AB 32 requires that statewide Greenhouse Gas (GHG) emissions must be reduced to 1990 levels by 2020, which represents about a 25% reduction relative to current levels. Future planning efforts that do not encourage reductions in GHG emissions would conflict with AB 32, impeding California's ability to comply with the policy. Binding and enforceable General Plan goals and policies which reduce GHG emissions are one outcome of AB 32.

Since transportation is the largest source of ozone precursors in the region and of GHGs in California, land use and transportation planning to reduce the amount of vehicular travel is a fundamental focus for jurisdictions that have air quality goals.<sup>4</sup> A variety of land use, transportation, and design approaches, when used together, can substantially reduce vehicular travel (and therefore improve air quality):<sup>5</sup>

- ✓ **Connectivity.** A finely-connected transportation network shortens trip lengths and allows land use to be placed closer in proximity and along direct routes. A roadway network requires users to travel long distances to destinations that are relatively close by increases trip lengths and creates obstacles for walking, bicycling, and transit access. Please refer to the Circulation Element for the City's approach to connectivity.
- ✓ **Compactness.** Compact development, by its nature, can increase the efficiency of infrastructure, enable travel other than by car, and reduce trip lengths. If communities can place the same amount of development in a smaller area closer together, GHG emissions would be reduced concurrently due to less travel by car and avoid unnecessary conversion of open space. Please refer to the Land Use Element for the City's approach to compact growth.
- ✓ **Diversity.** Multiple land uses placed in proximity around higher-activity land uses can accommodate travel through means other than by car. Please refer to the Circulation Element for the City's approach to diversity in land use.

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<sup>4</sup> Please refer to the California Air Resources Board web sites: <http://www.arb.ca.gov/cc/inventory/data/data.htm> and <http://www.arb.ca.gov/aqd/almanac/almanac08/almanac2008all.pdf> for more information on the sources of air pollution.

<sup>5</sup> Please refer to the California Air Pollution Control Officer's Association web site for more information: <http://www.capcoa.org/>.

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- ✓ **Facilities.** Safe and convenient bike lanes, pedestrian pathways, transit shelters, and other facilities that are incorporated into a comprehensive transportation network can also encourage more travel by other means, thereby reducing air pollution and GHG emission. Please refer to the Circulation Element for the City’s approach to transportation facilities planning.
- ✓ **Redevelopment.** One way to avoid GHG emissions is to facilitate more efficient and economic use of the lands in already-developed portions of a community. Reinvestment in existing neighborhoods and retrofit of existing buildings is GHG efficient, and can even result in a net reduction in GHG emissions. Please refer to the Land Use Element for the City’s approach to infill development.
- ✓ **Housing and Employment.** By planning for and placing jobs and housing closer to one another, communities can reduce work-related trips. The most effective local strategies seek to attract businesses and industries that are a good match for the current and anticipated labor force and to accommodate a variety of housing types that meet the needs of that labor force. This concept is known as “jobs-housing balance.” Please refer to the Land Use Element and Housing Element for the City’s approach to matching jobs and housing.

The above-described components of the City’s air quality strategy are addressed in other Elements of the General Plan (see Land Use, Circulation, and Community Character, in particular).

Another means of addressing global climate change and other air pollution is promoting energy efficiency and use of renewable (and low emission) sources of energy. Please see the Energy section of this Conservation Element for goals and policies on energy conservation and efficiency.

<b>SAFETY GOAL 6:</b>	<b>To maintain or improve local, regional, and global air quality and meet accepted standards for controlling airborne pollution.</b>
<b>SAFETY POLICY 6.1</b>	The City will require projects to reduce operational emissions from vehicles, heating and cooling, lighting, equipment use, and other proposed new sources.
<b>SAFETY POLICY 6.2</b>	New developments shall implement applicable emission control measures recommended by the Butte County Air Quality Management District for construction, grading, excavation, and demolition.
<b>SAFETY POLICY 6.3</b>	Government offices and other public and civic uses in Gridley should be located in or near downtown or toward the center of neighborhoods to allow easy access via transit, walking, and bicycling.

<b>SAFETY POLICY 6.4</b>	The City will include the use of low-emission vehicles and equipment, use of locally-produced and/or recycled construction materials, recovering demolition materials for reuse, or otherwise diverting from a landfill, or other best air quality management practices as one of its rating and ranking criteria in bidding for contracted work.
<b>SAFETY POLICY 6.5</b>	The City will encourage the local solid waste disposal provider to use low-emissions vehicles and other equipment.
<b>SAFETY POLICY 6.6</b>	The City will increase the use of low-maintenance, drought-tolerant landscaping and low-emissions landscape maintenance equipment in City parks and other City-maintained landscaped areas and open space.
<b>SAFETY POLICY 6.7</b>	The City’s vehicle fleet will be updated over time with more fuel-efficient, low-emission vehicles.
Safety Implementation Strategy 6.1	As funding is available, and as fleet-turnover warrants, the City will replace its vehicle fleet with low-emission vehicles and will purchase low-emission landscape maintenance equipment.

<b>SAFETY GOAL 7:</b>	<b>To minimize harmful exposure to and hazardous air pollutants.</b>
<b>SAFETY POLICY 7.1</b>	New development of sensitive uses, such as residences and schools, shall be located a safe distance from existing sources of air pollutant emissions, such as Highway 99, to reduce adverse public health effects.
<b>SAFETY POLICY 7.2</b>	The City will ensure that new industrial, manufacturing, and processing facilities that may produce toxic or hazardous air pollutants are located at an adequate distance from residential areas and other sensitive receptors, considering weather patterns, the quantity and toxicity of pollutants emitted, and other relevant parameters.
<b>SAFETY POLICY 7.3</b>	The City will communicate with the Butte County Air Quality Management District to identify sources of toxic air contaminants and determine the need for health risk assessments prior to approval of proposed development.
<b>SAFETY POLICY 7.4</b>	The City will consult with local businesses and other agencies to monitor and provide a rapid response and communication with the public in the event of emergency involving air pollution.

**Safety Element**

<p>Safety Implementation Strategy 7.1</p>	<p>When new development involving sensitive receptors, such as residential development, is proposed in areas exposed to air pollutant emissions, such as Highway 99, or when uses are proposed that may produce hazardous air contaminants, the City will require screening level analysis, and if necessary, more detailed health risk analysis to disclose potential impacts. The City will consult with the Butte County Air Quality Management District on analytical methods, mitigation strategies, and significance criteria to use within the context of California Environmental Quality Act (CEQA) documents, with the objective of avoiding or mitigating significant impacts.</p>
<p>Safety Implementation Strategy 7.2</p>	<p>Following adoption of the General Plan, the City will revise its Emergency Response Plan, as necessary, to address potential air pollution related emergencies. The City will communicate with local businesses and other agencies regarding response and communication protocols, and will ensure City staff is trained to properly respond to such emergencies.</p>

<p>SAFETY GOAL 8:</p>	<p>To ensure local land use, transportation, infrastructure, and environmental planning is consistent with California’s greenhouse gas reduction objectives.</p>
<p>SAFETY POLICY 8.1</p>	<p>The City and new developments will implement Land Use, Circulation, Community Character, Public Facilities, Conservation, Open Space, and other policies, which were developed in part to reduce air pollution.</p>
<p>SAFETY POLICY 8.2</p>	<p>The City, in consultation with Butte County Association of Governments, the Butte County Air Quality Management District, and California Air Resources Board, and other relevant agencies, will attempt to orient its plans, policies, and regulations to take best advantage of regional and statewide AB 32-related infrastructure investment and other programs.</p>
<p>SAFETY POLICY 8.3</p>	<p>The City will proactively communicate with Butte County Association of Governments to implement local transit projects, transit-oriented projects, and other plans and projects intended to reduce greenhouse gas and other air pollutant emissions.</p>
<p>SAFETY IMPLEMENTATION STRATEGY 8.1</p>	<p>After adoption of the 2030 General Plan, the City will develop a climate action plan and greenhouse gas (GHG) reduction program. Gridley’s GHG reduction program will achieve a minimum 24% reduction in GHG emissions relative to the projected levels by 2020. Since GHG emissions are estimated for 2030, this reduction would be a pro-rata share of 2030 General Plan buildout. Please refer to the approach outlined below.</p>



*This statewide context for GHG emissions is important for understanding local government responsibility. When California established a quantified objective for GHG reductions (achieve 1990 levels by 2020), the state did not envision that it would achieve these reductions through limits on population or economic growth. Rather, the state would need to grow in a more GHG efficient manner so that, despite adding substantial population and employment between 2006 and 2020, the state could still see an overall reduction in the total amount of GHGs. The framework of AB 32, therefore, requires development to be more GHG efficient.*

## GRIDLEY'S GHG REDUCTION STANDARD

The GHG reduction program will be structured to comply with the intent of The California Global Warming Solutions Act of 2006 (AB 32), as appropriate, within Gridley. The City's GHG reduction standard represents Gridley's "fair share" of statewide GHG reduction, consistent with legislation and regulations with AB 32 (i.e., reduce statewide GHG emissions to 1990 levels by 2020). Given the California context established by AB 32, Gridley would need to accommodate an increase in population and employment in a manner that would not hinder the state's ability to achieve the goals of lower emissions overall.

The statewide 1990 and projected 2020 GHG inventory can be parsed out to display only the GHG emission sectors that are applicable to Gridley. The state GHG inventory is comprehensive, and includes GHG emissions attributable to industrial processes and many other emissions sources over which local governments such as Gridley have little or no control. When considering only the land use-related emissions sectors (e.g., transportation, electricity, natural gas, domestic waste water treatment) from the State's GHG emissions inventory, projected 2020 emissions levels would need to be reduced by approximately 24% to meet the emissions limits established in 1990 by those sectors. Similarly, the emission sectors considered in Gridley's GHG reduction strategy will be limited to those sectors over which the City could have influence – either through entitlement authority, public investments, incentives, or other feasible means. When making the comparison between Gridley's GHG efficiency and that required by the state – the City can remove from both sides of the equation GHG sources that are beyond local control.

The total GHG emissions resulting from buildout of the General Plan is estimated and presented at a programmatic level in the City's General Plan EIR (under separate cover). Since Gridley's General Plan includes various methods to reduce vehicle miles traveled and other sources of GHG emissions, the emissions reduction target for Gridley would be relatively lower than a situation where the General Plan did not fully anticipate and plan to reduce climate change impacts in the context of the City's long-range land use and transportation planning.

## FUTURE REGULATIONS

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Future regulations would have the effect of reducing GHG emissions associated with General Plan implementation.<sup>6</sup> If mobile-source emissions regulations are implemented, this would reduce emissions associated with the General Plan, along with mobile sources throughout California. Other regulatory measures identified under the Scoping Plan could reduce emissions associated with the General Plan (as compared with what is estimated in the General Plan EIR). The effect of future regulations should be taken into account through implementation of this program. Gridley's GHG reduction standard (currently 24% from projected emissions by 2020) may need to be revised occasionally as new legislation or regulations become effective.

## GENERAL PLAN POLICIES AND IMPLEMENTATION STRATEGIES

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Policies included in other Elements of the 2030 General Plan have GHG-reducing effects. Policies in the Circulation, Land Use, Conservation and Open Space, Public Utilities, Services, and Facilities, and Community Character Elements are designed to reduce GHG emissions. Please see the General Plan Appendix B for a listing of Gridley General Plan policies and implementation strategies that would have GHG reduction benefits. The GHG benefits of these policies are estimated at a programmatic level in the General Plan EIR.

With emerging transportation modeling tools, it may become necessary to re-analyze the full benefits of Gridley's General Plan policies relative to the GHG reduction standard.<sup>7</sup> The City may add policies or implementation strategies to the General Plan or specific plans to achieve further GHG reduction benefit, compared to that which was estimated in the 2030 General Plan EIR.

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<sup>6</sup> For example, the California Air Resources Board AB 32 Scoping Plan identifies expected GHG emissions reductions from regulations, such as those that would reduce emissions from vehicles (e.g., AB 1493, Executive Order S-1-07 [i.e., the Low Carbon Fuel Standard]) and utilities (e.g., SB 107).

<sup>7</sup> The General Plan and EIR used the Butte County Association of Governments (BCAG) Regional Travel Demand Forecasting Model. To provide forecasts for the 2030 General Plan, the traffic modified the model's roadway link network and disaggregated the model's Traffic Analysis Zones (TAZ's) then existing streets in Gridley were added to the model. The BCAG model is not an "activity based" model and does not provide forecasts for non-vehicular trip mode shares. A post-processor was not available to allow transportation modeling to be sensitive to the travel demand-reducing elements of the 2030 General Plan (density, land use mix, community design, roadway connectivity, quality of pedestrian/bicycle system, etc). Regional land use-transportation studies suggest that traditional transportation models may overestimate travel demand where travel demand measures are present, including land use and transportation planning strategies, urban design concepts, and related measures. For more information, please refer to Bartholomew and Ewing, "Land Use-Transportation Scenarios and Future Vehicle Travel and Land Consumption," *Journal of the American Planning Association*, Volume 75, No. 1, Winter 2009.

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## GHG REDUCTION IMPLEMENTATION STRATEGIES, PLANS, AND PROJECTS

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In addition to policies included in the General Plan and future regulations, additional measures may be necessary to achieve the City's goal of local consistency with AB 32. The City will identify additional plans, policies, projects, mitigation measures, and regulations that are necessary to reduce GHG emissions and achieve Gridley's GHG reduction standard. The City will consider regulatory changes, infrastructure investment strategies, incentives, contributions to (or local use of) carbon off-set programs, and other measures, as appropriate. Each additional program should be enforceable, include a timeline, describe financing mechanisms, and assign responsibility to relevant agencies and departments.

Since transportation is the largest sector contributing to GHG emissions both locally and at the statewide level, land use/transportation projects that manage travel demand are crucial to achieving AB 32 objectives. The City will consider planning and development projects that increase housing/employment density, place homes in closer proximity with destinations, increase accessibility to transit, or otherwise decrease vehicle miles traveled (per household, per capita, per job). The City will consider actions that are consistent with, and implement the General Plan, such as:

- ✓ Downtown infill and redevelopment plans and projects;
- ✓ Highway 99 corridor infill and redevelopment plans and projects;
- ✓ Affordable housing projects or other higher-density housing and mixed-use projects near existing or planned future transit stops;
- ✓ Bicycle and pedestrian master plans and infrastructure projects; and,
- ✓ Other plans and projects consistent with the General Plan that would promote GHG efficiency.

The City could consider financing programs for installation and use of renewable energy infrastructure in new and/or existing development, green building codes to further increase energy efficiency in new buildings, incentive programs to assist existing property owners in making energy efficiency upgrades, travel demand management programs for new nonresidential projects, and other mechanisms that would reduce GHG emissions at General Plan buildout.

## MONITORING AND MAINTENANCE OF THE GHG REDUCTION PROGRAM

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The City will identify periodic check-in points for monitoring the effectiveness of policies, programs, and other measures relative to the GHG emission reduction target. The first such check-in year shall be no later than 2015.

During check-in points, the City will modify policies and measures, as necessary, to achieve the goals of this implementation strategy (i.e., 24% reduction relative to projected GHG emissions identified in the General Plan EIR). The City will monitor changes in the regulatory and technological environments, as well as grant and other funding programs that could be used to fund different components of this implementation strategy. The City will monitor relevant local, regional, state, and federal legislation related to GHG emissions, land use planning, and environmental review, and will make changes to its GHG reduction strategy accordingly. The City may need to revise its emissions reduction target as new information becomes available as a result of a Sustainable Communities Strategy, Alternative Planning Strategy, or other guidance from the State of California or the Regional Transportation Planning process outlined in Senate Bill 375 (signed September 2008).<sup>8</sup>

## FUNDING FOR GHG REDUCTION PROGRAM AND FOR IMPLEMENTATION PROJECTS

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Local governments, such as Gridley, will rely on state funding for GHG-efficient transportation systems and other local applications of the state's GHG reduction strategy. Local governments will rely on state funding to improve existing buildings and provide more energy- and GHG-efficient sources of electricity. Gridley and other local governments and regional planning agencies will also rely on the state for funding of more sophisticated transportation modeling that is sensitive to GHG-efficient land use, urban design, and transportation planning strategies.

As noted above, the City will pursue a broad range of planning and infrastructure projects. To support these efforts, the City will proactively track, and apply for grants from the State Department of Housing and Community Development, ARB, BCAG, Caltrans, U.S. Environmental Protection Agency, and other organizations that may offer greenhouse-gas-related grant programs.

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<sup>8</sup> SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks.

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