

Draft Natural Resources Element

Introduction

Purpose and Context

The City of Redding (City) has a wide range of natural resources within its Planning Area. These include the Sacramento River, creeks, ponds, wetlands, vernal pools, and groundwater resources; a variety of vegetation types and communities; wildlife; archaeological, historical, cultural, and aesthetic resources; mineral resources; and agricultural lands.

These resources contribute to the City's economy and are important elements of Redding's quality of life. The City values its resources and is committed to protecting and preserving its natural resources for the benefit of its current residents and the welfare of its future generations. This element thus seeks to balance the need to accommodate growth with the need for conservation, protection, and enhancement of the area's natural resources.

Specific topics addressed within the Policy Document include:

- Surface Water
- Groundwater
- Biological Resources
- Open Space
- Archaeological, Historical, Cultural, and Aesthetic Resources
- Mineral Resources
- Energy Resources and Conservation
- Agricultural Lands
- Air Quality

Parks and recreational facilities and programs are addressed in the Parks, Trails, and Recreation Element.

Authority

In accordance with Government Code Sections 65302(d) and 65302(e), a general plan is required to include both a Conservation and an Open Space Element.

Conservation Element

The Conservation Element is required to address the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. The Conservation Element may also cover:

- The reclamation of land and waters
- Prevention and control of the pollution of streams and other waters

Draft Natural Resources Element

- Regulation of the use of land in stream channels and other areas required for the accomplishment of the conservation plan
- Prevention, control, and correction of the erosion of soils, beaches, and shores
- Protection of watersheds
- The location, quantity, and quality of rock, sand, and gravel resources
- Flood control

Assembly Bill 162 (adopted in 2007) amended certain sections of the Government Code pertaining to land use planning. As it relates to the Conservation Element, Section 65302.d.(3) requires that the Natural Resources Element identifies rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

Open Space Element

It is the intent of the Legislature that cities preparing general plans recognize open space as a limited and valuable resource to be conserved whenever possible.

The Open Space Element is specifically required to consider:

- Open space for the preservation of natural resources (fish and wildlife habitat)
- Open space used for the managed production of resources (food and fiber)
- Open space for outdoor recreation, including areas of scenic, historical, and cultural value
- Open space necessary to maintain public health and safety
- Open space in support of military installations, military training routes, and underlying restricted airspace
- Open space for tribal resources, including public land containing any Native American, historic, cultural, or sacred sites listed or eligible for listing in the California Register of Historic Resources

The Conservation and Open Space Elements are commonly combined because of the overlapping topics each is required to address. The City of Redding has chosen to prepare a Natural Resources Element which effectively meets the statutory requirements of both documents.

Goals and policies

Surface and Groundwater Resources

The availability, quantity, and quality of water resources are vital to natural processes and human activities within any urban area. Water is essential to the development of housing, commerce and industry, agricultural operations, recreation, and the maintenance of high-quality fish and wildlife habitats. Surface water within the Planning Area consists of the Sacramento River and numerous tributary creeks. There are also a number of ponds, most of which are in private ownership.

Municipal Water Sources

The City of Redding has two major sources of drinking water: surface water and groundwater. The Sacramento River and Whiskeytown Lake provide approximately 70 percent of the City's total water supply. The remaining supply is provided by groundwater, which comes from wells drilled into the Redding Groundwater Basin.

In addition to the City of Redding, a number of water districts provide domestic and agricultural water within the Planning Area. These districts also obtain their supplies from a variety of sources, including the Sacramento River, Spring Creek Conduit, Muletown Conduit (which is also connected to Whiskeytown Lake), and wells.

The quantity and quality of water resources can be affected by a variety of activities, including, but not limited to:

- Sedimentation and siltation due to erosion
- Biological invasion of non-native species
- Increased stormwater runoff and reduced groundwater recharge
- Excessive pumping of groundwater and/ or excessive water consumption
- Contamination from improper or excessive use of pesticides, herbicides, fertilizers, and runoff from animal feedlots or pastures
- Discharge of various chemicals and compounds due to improper handling and disposal
- Contamination resulting from high concentrations of on and off-site sewage-disposal systems
- Leaching of hazardous materials or substances

Stormwater Management/ Groundwater Recharge

The Sacramento River, its tributary streams, and its collective floodplains provide many benefits to the community beyond their scenic, recreational, and habitat values. The City's development regulations largely protect these areas from development, and represent significant opportunities for stormwater management and groundwater recharge. In addition to basic floodplain protection, the City also requires new development to establish river- and creek-corridor buffer areas, which are to remain in their natural state to protect riparian vegetation, ensure streambank stabilization, and to provide public access to these waters.

The following figures of the Natural Resources Element and the Public Safety Element depict the areas available for stormwater management and groundwater recharge as required by Government Code Section 65302.d.(3):

- Natural Resources Element, Figure 1, "River and Creek Corridor Buffer Widths"
- Public Safety Element, Figure 3, "100 Year Floodplain"

Issues

Erosion and sedimentation control are the primary issues in the Redding area from a water-quality perspective. While the City recognizes the economic importance of allowing grading and other site- development activities to occur during what is considered the "rainy season" (typically October 15 through April 15), of equal or greater importance is the protection of our surface-water resources. Siltation of our waterways has dramatic negative effects on aquatic wildlife, including federally protected species of anadromous fish. The following policies strike a balance between these objectives.

Goal NR1: Minimize soil erosion and sedimentation problems resulting from development activities; improve the quality of stormwater runoff.

NR1A – Consider updating the process and requirements for the development, review, and approval of erosion- and sedimentation-control plans for development projects to include the use of best available practices.

NR1B – Continue to improve compliance with the California Regional Water Quality Control Board's regulations and standards and work with local, state, and federal agencies and private watershed organizations to maintain, protect, and improve water quality and quantity.

NR1C – Utilize the stormwater protection measures of the City's National Pollution Discharge Elimination Systems (NPDES) permit and the provisions of the City's grading ordinance to control sources of pollutants and improve and maintain urban runoff water quality.

NR1D – Strive to ensure that erosion control devices are installed and maintained in accordance with the requirements of the grading ordinance, NPDES, conditions of granting permit approval, and any other applicable requirements; and that project monitoring and erosion-control enforcement activities are undertaken to ensure that that the facilities function effectively.

NR1E – Pursue immediate remediation to the extent feasible when erosion damage is discovered and/or initial control measures fail.

NR1F – Continue to enforce the provisions of the RMC for failure to comply with the requirements of the Grading Ordinance and/or an approved erosion- and sedimentation-control plan.

NR1G – Continue supporting and/or jointly sponsor erosion- and sedimentation-control training and education activities in conjunction with local/ regional jurisdictions and the development community. Encourage neighboring jurisdictions to adopt and enforce consistent erosion- and sedimentation-control measures.

NR1H – Provide opportunities for staff responsible for monitoring and enforcing the City's Grading Ordinance to receive adequate training regarding erosion- and sedimentation-control practices.

NR1I – Work with Shasta County and other regional, state, and federal agencies to reduce the amount of toxic chemicals and other agents or pollutants entering the surface water system from agriculture, entertainment facilities such as golf courses, and urban runoff.

Goal NR2: Develop and Maintain adequate water supplies for domestic and fire-suppression purposes.

NR2A – In accordance with Water Utility Master Plan, continue to evaluate options for increasing the City's water supply, including, but not limited to, acquiring additional allocations from the Sacramento River, development of additional wells, and enhancement of water-storage and treatment facilities.

NR2B – Encourage water-conservation practices such as:

- Planting water-efficient landscape, prioritizing native and drought-tolerant plants as appropriate.
- Adherence to the City's Water Efficient Landscape Ordinance and the Urban Water Management Plan.
- Striving to protect local water rights and resources and preventing exportation of surface water by supporting efforts to retain local control over these resources.
- Use of "Gray water" for landscape irrigation purposes, where feasible, as approved by Shasta County Department of Environmental Health.
- Encourage/support the use of technological and innovative water conservation devices or practices that may be developed.

NR2C – Utilize water-reclamation projects in landscape and agricultural uses, where appropriate and as approved by the California Regional Water Quality Control Board and State Department of Health Services.

Goal NR3: Preserve and protect the quantity and quality of surface- and groundwater resources within the planning area. Prevent and remediate surface- and groundwater and soil contamination as appropriate.

NR3A – Prioritize and strive to avoid impacts to groundwater recharge areas through open space preservation, runoff management, stream setbacks, clustering of development, and Low Impact Development (LID) treatment where appropriate.

NR3B – Consider working with local, state, regional, and tribal agencies to:

- identify and map groundwater recharge areas within the Sphere of Influence and protect, improve, and enhance groundwater quality of the region, and
- encourage and support those responsible for soil, surface-water, and/or groundwater contamination to initiate, monitor, and complete full remediation activities.

NR3C – Continue to support efforts to periodically review and maintain Redding Basin Water Resources Management Plan that addresses long-term sustainability of this resource.

Biological Resources

Unlike many urban areas, the Redding Planning Area contains a variety of biological and wildlife resources. Generalized habitat mapping of the Planning Area is available on the CalVeg Vegetation Classification and Mapping. The data and mapping available on CalVeg are not site-specific, but provide a reasonably accurate composition of basic habitat types and their general distribution throughout the Planning Area.

It should be noted that the majority of the Planning Area's land cover is classified as urban and Blue Oak Woodland, Blue Oak-Foothill Pine, Mixed Chaparral, and Annual Grassland land cover types cover the remaining portions of the Planning Area.

The goals and policies of this and previous General Plans have resulted in the protection of thousands of acres of various habitat types, generally along the Sacramento River and its tributary streams as well as associated slope areas. The General Plan and its implementation of development ordinances (e.g., Zoning Ordinance and Subdivision Ordinance-as of December 2022) identified the following as open space and/or greenway that largely precludes development:

- “Greenway” acres in the City Limits: 8,062
- “Greenway” acres in the “Primary Growth Area”: 2,084 acres
- “Greenway” acres in the “Secondary Growth Area”: 1,150 acres

Additionally, to ensure perpetual protection of these resources, approximately 3,711 acres were zoned “Open Space” in 2022, with 908 acres protected via open space easements on private parcels that were recorded as development occurred. Lands either zoned “OS, Open Space” or which have been placed in private open space easements are depicted in Figure 2.

For purposes of this General Plan, riverine (e.g. stream beds, riparian areas, and associated floodplain areas) and aquatic (e.g. vernal pools, swales) habitat types are considered sensitive and require special consideration when developing within or in their proximity. Additionally, Blue oak, Blue oak-foothill pine woodlands, grasslands, and other land cover types may also contain special status species such as those protected under the Migratory Bird Treaty Act (MBTA).

A number of habitat types in the Planning Area support a variety of both plant and animal species, some of which are classified as special status species. Special-status species include:

- Species that are listed or proposed for listing as Threatened or Endangered under the State or Federal Endangered Species Acts
- Species that are identified as a candidate, sensitive, or special-status species by the California Department of Fish and Wildlife (CDFW) or the United States Department of Fish and Wildlife (USFW)

Potential impacts to sensitive habitats and/or special-status species must be mitigated in accordance with the requirements of the California Environmental Quality Act (CEQA) and federal regulations.

The Planning Area supports eighty-four special status species and/or their habitat, including thirty-five plants, six invertebrates, fourteen fish, three amphibians, one reptile, fifteen birds, and ten mammals. Of those eighty-four species, seventeen are federal or state-listed species (including those proposed as candidates for listing). This includes three plants, five invertebrates, four fish, one amphibian, and four birds. While not considered special-status, many commonly occurring birds that are protected under the MBTA could potentially nest onsite.

Critical Habitat for seven federal or state-listed species can be found within the Planning Area, as well as three sensitive natural communities. Critical habitat consists of vernal pools, seasonal wetlands, swales, and the Sacramento River and its tributary streams. Riparian habitats along the Sacramento River are of special concern due to the presence of three sensitive natural communities, the habitat they provide for special-status species, and the ecosystem services they provide (e.g., flood protection and improvement of water quality). These areas may support greater than thirty of the special-status species that occur in the Planning Area. In addition, aquatic and riparian habitats associated with the river and creeks serve as important wildlife corridors between larger blocks of habitat.

Foothill grasslands and woodlands are also may support several rare plant species, in addition to providing nesting habitat for many bird species and providing roosting locations for bats. Vernal pools and seasonal wetlands, which may support special-status invertebrate species, are also often associated with foothill grassland. The thousands of acres within the undeveloped open space of the Planning Area provide terrestrial connectivity. Figure 3 depicts the general locations of Sensitive Natural Communities in the Planning Area.

Goal NR4: Preserve and protect significant habitats, plants, and wildlife that exist in the Planning Area.

NR4A – Prioritize avoidance/minimization of development-related disturbances of sensitive habitats and “special status species” by encouraging innovative site design and planning. Ensure implementation of statutory protection for these species and require appropriate mitigation if disturbed.

NR4B – Work to preserve and enhance the fisheries of the Sacramento River and those tributary streams and stream segments depicted in Figure 1 and/or other streams or water bodies identified by appropriate regulatory agencies.

NR4C – Maintain and update data and information as necessary regarding areas of significant biological value within the Planning Area to:

- Provide critical information to the community.
- Facilitate resource conservation.
- Facilitate appropriate management of development activities.

NR4D – Provide adequate buffering of sensitive habitats based on the type of habitat, its size, value and requirements of regulatory agencies. Work with other agencies and organizations as

appropriate to establish habitat mitigation banks, habitat conservation plans, conservation easements, and other mechanisms that serve to protect sensitive habitats and species.

NR4E – Encourage education, community volunteerism and stewardship in the protection and enhancement of local biological resources.

NR4F – Prioritize retaining city-owned properties that contain environmentally sensitive areas.

NR4G – Encourage landowners to work with local agencies to establish conservation easements to protect and preserve sensitive resources.

NR4H – Encourage landowners to undertake invasive species management as appropriate; prioritize continuation of the City’s invasive species management efforts particularly along the City’s river and stream corridors.

NR4I – Periodically review the City’s landscaping requirements and recommendations to remove plant species that are known or suspected to be invasive within the Planning Area’s varied habitat types.

Goal NR5: Protect and preserve creek corridors, riparian areas, vernal pools, and wetlands.

NR5A – Continue to require new development to provide at least the minimum river and creek-corridor development setbacks (buffer areas) in accordance with Figure 1 and the Redding Municipal Code (RMC). These setbacks may be modified based on project/resource-specific circumstances and appropriate mitigation. Consider requiring dedication of these areas to the City for open space and public uses and/or establish a permanent conservation easement granted to the City or other appropriate organizations as a condition of development approval.

NR5B – In addition to the protection of the stream corridors depicted in Figure 1, work with project developers to also protect those secondary stream tributaries depicted in Figure 4, vernal pools, riparian habitats, and wetlands in their natural state to the extent feasible. Where appropriate, undertake restoration and provide development buffers from these resources. The mitigation of all adverse impacts on wetland resources are required in compliance with State and Federal regulations protecting such resources, and if applicable, threatened or endangered species.

NR5C – Encourage the acquisition, preservation, restoration, and enhancement of native vegetation with a focus on wetlands and riparian habitat that will improve the biological value and integrity of the City's natural resources. Encourage native landscape in unvegetated, manmade areas, such as along streets and in abandoned lots.

NR5D – Uses allowed within riparian corridors should:

- Minimize the creation of erosion, sedimentation, and increased runoff.
- Emphasize retention and enhancement of natural riparian vegetation.
- Provide for unimpaired passage of fish and wildlife.

- Avoid activities or the development of new features that result in disturbance or dispersal of wildlife.
- Avoid channelization to the extent feasible except as may be necessary to preserve public safety.
- Avoid substantial interference with surface and subsurface flows.
- Incorporate natural vegetation buffers.

Goal NR6: Protect the aesthetic and biological value of Oak Woodlands and other natural vegetation and establish a healthy and robust urban forest.

NR6A – Strive to preserve and protect existing native oaks, especially valley oaks that are often associated with riparian habitats, in the design and review of development projects. The preservation of stands of trees within developments is generally preferred over the preservation of individual trees, with the exception of special-status species, heritage trees, and other trees as may be identified in the City’s Municipal Code.

NR6B – Consider identifying appropriate "areas" to be used for the planting of native trees when desirable to offset development impacts to woodland resources. This General Plan explicitly recognizes that there are tradeoffs between the goals and policies that promote infill development over outward expansion and resultant impacts to woodland resources within the future urban footprint.

NR6C – Periodically review and consider amendments to the City’s Tree Management Ordinance to assess tree replacement requirements, tree planting requirements, potential fees or other mechanisms to facilitate the planting of trees in the City and funding of an urban forestry program.

NR6D – Strive to protect and manage the urban forest to reduce energy demand, increase carbon sequestration, and reduce urban heat gain.

NR6E – Consider undertaking measures to maintain and expand the urban forest by:

- Maintaining existing City trees through regular, scheduled service.
- Planting new trees to replace those that require removal and enhance the street tree canopy, where needed.
- Requiring street and parking lot tree planting in new development.
- Working with commercial parking lot owners to improve the shade canopy.
- Implementing the Zoning Code’s tree protection regulations.
- Using volunteer groups and property owners to plant new trees, care for newly planted trees, maintain young trees, and provide information and instructions regarding such care and maintenance.
- Exploring available funding opportunities for the urban forest program.
- Incorporate existing trees into development projects where appropriate while utilizing effective construction practices to minimize to avoid impacts to those trees.
- Periodically reviewing the landscape requirements of the RMC, including but not limited to the off-street parking and landscape standards ordinances as well as the species and other information contained in the City’s “Street Tree List.”

- Consider undertaking the review, update, and implementation of the Heritage Tree provisions of RMC Section 13.40.020, particularly as part of an urban forestry program should be established.

Goal NR7: Protect habitat linkages and migratory corridors.

NR7A – Strive to maintain, preserve, and enhance the habitat linkages/wildlife corridors and sensitive habitats that are created by the open-space ("Greenway") network established by this General Plan. Require that development in areas defined as "Greenway" to consider corridor impacts and, where necessary, provide alternate usable links between habitat types or areas and/or provide alternate development plans that avoid the open-space network and sensitive habitats.

NR7B – Maintain and preserve other natural habitat linkages and wildlife corridors in the City where feasible. Discourage development impacts to these linkages and corridors and fully mitigate adverse impacts.

NR7C – Explore options to prevent unlawful uses and damage to public and private open space areas and ensure habitat values are maintained and/ or enhanced.

Open Space

In addition to protecting life and property, open-space areas are essential to the health and livability of a community. Open space may consist of developed and undeveloped parklands (see Parks, Trails, and Recreation Element), and natural areas, either public or private, that have been set aside in perpetuity for their ecological, visual, or safety-related aspects.

Redding has an extensive open-space network. The heart of this network is the Sacramento River. Numerous tributary streams flow into the river that, for the most part, originate in steep terrain to the west and north of the city. Policies of this and past General Plans have set aside these slope and stream- side areas from development. Together, they represent approximately 17 square miles of open space within the City's planned "growth areas", including over 8,000 acres within the City limits as of 2022. As noted above, over 4,600 acres were protected through open space zoning and/or private open space easements. These lands are depicted on the General Plan Diagram as "Greenway" and are subject to the development constraints outlined in this General Plan and implementing ordinances.

While open space is valuable in and of itself, connectivity and public accessibility enhance its value appreciably. Policies contained in the Community Development and Design Element address the need to provide public access to these open-space corridors. The Parks, Trails, and Recreation Element addresses the development of a comprehensive trail system largely utilizing creek corridors.

As discussed in detail within the General Plan, the Redding Planning Area contains several natural features which are considered hazardous for development. These include natural areas containing excessive slopes (greater than 20 percent) and areas within the 100-year floodplain of the Sacramento River or its tributaries. In the interest of public safety and to reduce the potential for

loss of life or property damage from wildland fires or floods, it is essential that development restrictions be applied within these hazard areas.

Goal NR8: Preserve areas containing excessive slopes and 100-year floodplains as open space to prevent loss of life and/ or property damage and to provide valuable habitat and recreational opportunities.

NR8A – Where appropriate, require as a condition of development approval, the public dedication of flood-prone lands adjacent to the Sacramento River and those tributary streams identified on Figure 1. Exceptions to this policy may be made based on:

- the provisions of any adopted specific plan, or
- approval by the City in consideration of special circumstances unique to a flood-prone area where the extent of flooding is largely dictated by inadequate drainage improvements, or
- when an entire parcel is constrained by the floodplain, and/or where the flooding occurs within a developed area.

NR8B – Strive to preserve land publicly dedicated as open space. Development in these areas, except as required to provide public facilities, such as roads, utilities, and trails, should be restricted to passive, low-impact uses that minimize the removal of existing vegetation and maintain or increase the existing habitat value, while providing adequate protection from wildland fires. Coordinate with other entities as appropriate to establish conservation easements that will ensure long term protection and necessary maintenance.

NR8C – In those instances where it is determined that public open space dedication is not appropriate, require, as a condition of development approval, that private open-space easements be established for significant areas of undeveloped lands that are flood prone or exceed a slope of 20 percent. Use public dedications and/or trail easements when necessary to connect these areas to existing or proposed public open spaces, streets, parks, and similar features.

NR8D – Periodically update the Parks, Trails, and Open Space Master Plan and use it to implement various policies of this General Plan that address the:

- Framework for open-space lands
- Role of public and private open-space lands
- Preservation of important ecological areas
- Acquisition and management of public open space land

Archeological, Historic, and Cultural Resources

Due to the presence of the Sacramento River and its numerous tributary creeks, the Redding Planning Area has a relatively high potential for cultural resources. The river, creeks, and old river terraces are prime locations for cultural resource sites, both prehistoric and historic. The records kept at the Northeast Information Center of the California Historical Resources Information System at California State University, Chico, indicate that over 170 prehistoric (pre-European) sites have been located and documented within the Planning Area. Two archaeological sites have

been listed on the National Register of Historic Places. Many more sites are likely to exist and could be susceptible to inadvertent destruction during construction and development activities if precautions are not undertaken.

Redding has numerous historic structures dating back to the late Victorian period in addition to architectural examples from the 1920s to the 1940s, including Art Deco and Works Progress Administration (WPA)-period buildings. Five of the City's historic structures (Old City Hall—1313 Market Street; Pine Street School—1135 Pine Street; the Frisbee House—1246 East Street; the Lorenz Hotel—1590 California Street, and the Cascade Theatre — 1725 Market Street) have been listed on the National Register of Historic Places. However, many more of the City's historic structures would likely qualify for nomination to the National Register, or other state and local registers, either as individual structures or as historic districts.

Goal NR9: Protect and enhance historically and culturally significant resources within the Planning Area.

NR9A – Strive to ensure the protection of prehistoric, cultural, and archaeological resources during the development process. Consult with local Wintu tribes as appropriate to help identify and preserve cultural resources during the development review process.

NR9B – Require that any human remains discovered during implementation of public and private projects within the City be treated with respect and dignity and fully comply with the California Native American Graves Protection and Repatriation Act and other appropriate laws.

NR9C – Continue to consult and require record searches for discretionary projects with the Northeast Center of the California Historical Resources Information System (CHRIS) located at the CSU Chico. Consult with and distribute environmental review documents to the Native American Heritage Commission through the State Clearinghouse.

NR9D – Encourage partnerships to identify, preserve, protect, and/or restore historic buildings, structures, landmarks, and important cultural resources.

NR9E – Maintain and update as necessary the City's Historic Preservation Ordinance and the historic resources inventory; consider seeking grants and assistance from community organizations to assist and facilitate this effort.

NR9F – Consider seeking the City's recognition by the State Historic Preservation Office as a Certified Local Government as a means to obtain grant funding sources available to Certified Local Governments to develop, establish and maintain a more robust historical resources inventory and program.

NR9G – Seek opportunities to work with the local Wintu tribes to facilitate the use of “traditional ecological knowledge” for land management and restoration as appropriate.

NR9H – Explore appropriate opportunities to support tribe access to and co-management of open space lands under City ownership or control, including acquisition of designated surplus open space lands for natural resource protection purposes.

NR9I – Explore opportunities as appropriate and reasonably practical for the consultation, review, and opportunity to provide comments for development applications and potential policy changes, that may impact cultural resources.

Mineral Resources

Mineral deposits within the Planning Area consist of copper, gold, tungsten, and gravel. In addition, the area around the Redding Municipal Airport contains gas-bearing strata. The westerly portion of the Planning Area has been mined in the past for placer and lode gold, tungsten, and copper. Most previous mining efforts did not prove to be economically viable. However, this is likely to change in the future as the value of precious metals continues to increase. Gravel-bearing deposits exist along the Sacramento River, Clear Creek, Olney Creek, Churn Creek, and Stillwater Creek.

The presence of existing incompatible development will preclude mineral-extraction activities in those locations. Conversely, areas classified as MRZ-2a and 2b, where mineral-extraction activities are considered feasible, have been designated with a "Critical Mineral Resources Overlay" on the General Plan Diagram.

In 1997, the California Department of Conservation, Division of Mines and Geology (DMG) published a DMG Open File Report 97-03 entitled, *Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite Within Shasta County, California*. The primary purpose of the report is to identify the known or inferred mineral potential of lands within the county to ensure that the mineral potential of land is recognized by local government decision makers and considered before land use decisions are made that could preclude future mining. The report also contains 50-year projections for population and per capita consumption of aggregate and a comparison between the estimated 50-year aggregate demand and current reserves.

The findings of the report indicate that current known concrete-grade alluvial aggregate reserves within Shasta County are calculated to be approximately 30.3 million tons. Based on a historic aggregate consumption rate of 8.0 tons per person per year, the report estimates that current known reserves are likely to be depleted within 17 years. This information highlights the importance of protecting both known and inferred deposits from encroachment by potentially incompatible land uses.

Land classifications utilized in the referenced DMG report are presented in the form of Mineral Resource Zones (MRZs). Each zone type relates to the degree of knowledge about a mineral resource occurrence and the economic characteristics of the deposits. Areas of identified mineral-resource significance, either demonstrated/measured or inferred, are classified as MRZ-2a or MRZ-2b.

Although most areas along the Sacramento River are classified as MRZ-2a or 2b in the 1997 DMG Report, the presence of existing incompatible development will preclude mineral extraction activities in those areas. Conversely, areas classified as MRZ-2a and 2b, where mineral extraction activities are considered feasible, have been designated with a “Critical Mineral Resources Overlay” on the General Plan Diagram.

Goal NR10: Maintain an adequate supply of mineral resources to meet the long-term regional needs. Protect the critical mineral-resource areas from encroachment by incompatible uses.

NR10A – Focus mineral resource-protection efforts in areas identified with a "Critical Mineral Resource Overlay" on the General Plan Diagram. Remove the "Critical Mineral Resource Overlay" within a reasonable time after the mineral resource is exhausted and reclamation is complete.

NR10B – Maintain current information regarding the status and location of mineral deposits within the Planning Area as information becomes available.

NR10C – Strictly limit incompatible development in or near areas designated in the "Critical Mineral Resource Overlay." Residential uses within overlay areas should be limited to one (1) dwelling unit per 40 acres.

NR10D – Require a use permit or other appropriate review to establish new mining operations. The use permit should contain conditions necessary to protect the public health, safety, and welfare; to minimize impacts on adjacent land uses; and to mitigate other potential adverse environmental impacts.

NR10E – Outside Critical Mineral Resource Overlay areas (but within areas classified as Mineral Resource Zones MRZ2a and/or MRZ2b by the State Division of Mines and Geology), mining may be permitted in the in-stream, floodplain, or gravel-bar areas of a river or creek provided removal of sand and gravel is:

- Conducted during a declared civil or hazardous material emergency or natural disaster to relieve or correct potential hazards to the public health, safety, or welfare caused by such emergency or disaster.
- For removal of dredger tailings for reclamation purposes only.
- To protect a public structure, such as a bridge, when it is determined to be necessary by the public entity responsible for said structure.
- To remove a buildup of sand and gravel to maintain the channel capacity to prevent flooding.
- For Items 2, 3, and 4 above, the use permit and reclamation plan for mining of said areas shall be based on a stream-management program, prepared by qualified professionals in appropriate disciplines, which includes data and analysis to show that:
 - There will be no significant adverse impact on in-stream habitat, riparian habitat, wetlands, or rare, threatened, or endangered species of fish, wildlife, or plants, or cultural resources.

- There will be no significant adverse impact on existing structures, including bridges or levees.
- There will be no significant increase in bank erosion, deposition, or flooding.
- There will be no significant adverse impacts to surrounding properties, including, but not limited to, noise, visual impacts, dust, and similar impacts.

Energy Resources and Electrification

Electricity within the City limits is provided primarily by the City of Redding's Electric Utility, through its transmission and distribution system. Natural gas and electric service within the remainder of the Planning Area are provided by Pacific Gas and Electric Company (PG&E). The City is committed to providing affordable, reliable, and clean energy to its residents; while making sure the energy resources are sustainable, environmentally responsible, and meet the needs of the community now and in the future. The City also encourages electrification and the use of alternative forms of energy, such as solar, with an emphasis on the conservation of all non-renewable energy sources. System planning and needed facilities to achieve these goals are addressed in the Public Facilities and Services Element.

Goal NR11: Support the State's clean energy initiatives through policies and procedures that align with the electrification, conservation, and renewable energy goals of the City.

NR11A – Strive to offer technical assistance and recommendations to customers who seek such analysis as appropriate to help identify opportunities to reduce energy consumption and increase the adoption of electrification measures. Strive to provide information to customers about modifying energy consumption to mitigate the City's peak electric demand.

NR11B - Continue to utilize the California Green Building Standards Code in commercial and residential construction to address energy and other resource efficiencies.

NR11C – Continue to evaluate and implement as appropriate, electrification and other new energy resource technologies that reduce environmental impacts from fossil fuel consumption and energy usage.

NR11D - Continue to invest in and promote public electric vehicle charging infrastructure through the application of manageable planning and development policies to encourage a robust charging network at various locations and facilities throughout the community. Support third-party investments in the development of charging infrastructure in multiple-family housing developments and in those areas that increase traffic to the City for purposes of shopping, entertainment, work, and/ or similar purposes.

NR11E – Continue to support the increased adoption of building and transportation electrification technologies by implementing standard policies and procedures that encourage investments in public and private infrastructure.

NR11F – Consider the use of integrated resource planning processes to establish a long-term Energy Resource Plan that meets or exceeds the state's clean energy mandates while balancing

reliability and affordability, and continually assessing the effectiveness and efficiency of the Utility's resource plan.

Agricultural Lands

The source of information on soils within the Planning Area used for this General Plan is limited to the soil maps prepared by the Natural Resource Conservation Service (NRCS) and the California Department of Conservation (CDC) Prime Farmland Series.

The NRCS classification system organizes soils into eight major capability classes designated by Roman numerals I through VIII. Class I and II soils are considered "prime" and have the fewest limitations in terms of the range of use and are depicted on Figure 5. The other soil classifications have progressively greater natural limitations.

The CDC Important Farmland Series Mapping and Monitoring Program designate important farmlands in California based on NRCS soil surveys and the available land use data. This system is also classified into eight categories, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban Land, Other Land, and Land Committed to Incompatible Uses. The Planning Area does not contain lands designated as being of statewide or local importance. Limited areas of Unique Farmland are identified in the Churn Creek Bottom area. Soil classifications notwithstanding, there are commercial farms in the planning area, although these are limited in scope and scale.

Goal NR12: Promote the economic viability of agriculture in areas suited for agricultural use.

NR12A – Consider requiring buffers for new development to minimize impacts of adjacent active agricultural operations to reduce conflicts between urban and agricultural uses.

NR12B – New development proposed on “prime” soils and/or Farmland of Local Importance should be encouraged to provide opportunities for community gardens, edible landscape gardens, community food forests (landscapes with trees, shrubs, and herbs, consisting of primarily edible plants), or similar projects to enable residents and community members to grow local food produce.

NR12C – Strive to avoid fragmentation and conversion of agriculturally managed land in high-fire severity zones where fragmentation, conversion, or change in management could increase the risk of fire to the community.

NR12D – Explore the appropriateness of expanding the types of zoning districts that allow hobby or small-scale (non-cannabis) commercial agricultural uses in recognition that active farming operations when appropriately located and managed, are not inherently detrimental to surrounding properties and can be a benefit to the community.

Air Quality

Air quality in the Redding Metropolitan Area of Shasta County reflects the population growth of the local region and the counties to the south. Redding is a central place for urban demands including medical, retail, government, education, employment, housing, and transportation in the north state. It should be noted that the northern part of the valley is subject to significant ozone transport from areas, south of Shasta County, including the Sacramento urban area and beyond. These factors, coupled with the region's climate and topography have caused the air quality of the metropolitan area to become "moderately" polluted with ozone (smog) and particulates (dust and smoke) from time to time.

Greenhouse Gases

While the sources and effects of most air pollutants are local or regional, the sources and effects of greenhouse gas emissions concentrations are global; the economic, environmental, and social effects of climate change are extensive. However, strategies intended to reduce greenhouse gas emissions can also reduce household and business transportation costs, decrease harmful air pollution, enhance mobility, reduce commuting time, and provide other benefits. Compact development, which reduces greenhouse gas emissions, can also be more cost-effective to provide public infrastructure and services. Measures that promote energy efficiency not only reduce greenhouse gas emissions but also save on household and business utility costs. Encouraging reinvestment in existing developed areas can reduce vehicular travel and associated greenhouse gas emissions, and promote the City's economic development and fiscal sustainability objectives.

For many years Redding and Shasta County have exceeded air quality standards for particulate matter and ozone. Particulate matter can aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The primary sources of PM10 and PM2.5 are road dust and construction/demolition activities. Ozone is a public health concern because it is a respiratory irritant that increases human susceptibility to respiratory infections. Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is formed through a complex series of chemical reactions known as ozone precursors. The primary ozone precursors of concern are reactive organic gases (ROG) and nitrogen oxides (NOx). Vehicle exhaust is the primary source of NOx and ROG in the region. The period required for ozone formation allows the reacting compounds to be spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

The City's and the region's population is expected to increase through 2045, which will lead to more vehicles on the road. However, it is believed that improved automobile emission standards and increased alternatives to fuel such as electric vehicles will lead to a reduction in the amount of pollutants in vehicle exhaust.

For the last several decades the cities of Redding, Shasta Lake (once it became an incorporated city), Anderson, and unincorporated Shasta County have utilized a similar process to analyze potential air quality impacts from new development and to incorporate an effective "mitigation" process to reduce emissions. The process follows guidance provided by the Shasta County Air

Quality Management District (SCAQMD) for use in discretionary development projects. Following a computer modeling/analysis of potential impacts (using a California Air Resources Board approved computer model), project impacts are evaluated against adopted thresholds. Where necessary, projects are required to use a set of established Standard Mitigation Measures (SMM) and Best Available Mitigation Measures (BAMM) each of which have an Emission Reduction Efficiency percentage applied to it based on SCAQMD guidance, to reduce emissions.

The process of applying SMM and BAMM is:

- Apply appropriate SMM to all projects based on potential air quality impacts. This effort will help contribute to reducing cumulative impacts.
- Apply SMM and appropriate BAMM when a project exceeds Level "A" thresholds. The BAMM will be applied to any project which exceeds Level "A" thresholds. The appropriate type and number of BAMM applied to a project will be based on the unique characteristics of the project. BAMM will be selected from a list of measures provided and updated by the AQMD.
- Apply SMM, BAMM, and appropriate special BAMM (when a project exceeds Level "B" thresholds) based on their emission reduction potential to lower project emissions below Level "B" thresholds. The City will seek the recommendations of the AQMD regarding the efficiency of proposed emission measures beyond standard BAMM as part of the effort to reduce project emissions below Level "B" thresholds.
- If an application of the above procedures results in reducing project emissions below Level "B" thresholds, the project can proceed with an environmental determination of a Mitigated Negative Declaration assuming other project impacts do not require more extensive environmental review.
- If project emissions cannot be reduced to below Level "B" thresholds, emission offsets will be required. The City may seek the assistance of the AQMD regarding other efforts and measures that could be used to reduce unmitigated emissions exceeding the 137 lbs. per day. If, after applying the emissions offsets, the project emissions still exceed the Level "B" threshold, an EIR will be required before the project can be considered for action by the reviewing authority.

Goal NR13: Coordinate with surrounding jurisdictions, the Shasta County Air Quality Management District (SCAQMD), the California Air Resources Board (ARB), and other partners where feasible toward the development of a consistent and effective approach to the regional air pollution problem.

NR13A – Utilize the following thresholds that have been adopted by regional agencies when determining air quality impacts of discretionary projects. Update the thresholds as may be recommended by the SCAQMD from time to time.

Draft Natural Resources Element

Level "A": Up to:

- 25 pounds per day of oxides of nitrogen
- 25 pounds per day of reactive organic gases
- 80 pounds per day of fine particulate matter (PM_{2.5})
- 80 pounds per day of inhalable particulate matter (PM₁₀)

Level "B": Up to:

- 137 pounds per day of oxides of nitrogen
- 137 pounds per day of reactive organic gases
- 137 pounds per day of inhalable particulate matter (PM₁₀)

NR13B – Utilize the process discussed in this Element to apply SMM and BMM to discretionary projects and as one of the determinants of when an EIR is required to address air quality impacts. Update Emission Reduction Efficiency percentages as recommended by SCAQMD.

NR13C – Coordinate with the SCAQMD to use consistent and accurate procedures in the review of projects which may have air quality impacts. Refer development applications that exceed Level “A” thresholds to the SCAQMD for review and comment. Incorporate the recommendations as appropriate.

NR13D – Encourage efforts to reduce the amount of vehicle miles traveled (VMT) by encouraging mixed-use development, promoting a jobs/housing balance, and encouraging alternative transportation such as walking, cycling, and use of public transit.

NR13E – Work with the SCAQMD and other partners as appropriate to meet the state and federal ambient air quality standards in order to protect all residents from the health effects of air pollution.

NR13F – Coordinate with SCAQMD in evaluating the exposure of sensitive receptors to toxic air contaminants and odors, and impose appropriate conditions on projects to protect public health and safety so as to reduce the exposure of sensitive receptors to toxic air contaminants and/ or noxious odors.

NR13G – Consider referring all project applications that involve sensitive receptor uses that would be constructed in proximity to freeways, industrial uses, truck routes, petroleum fuel stations and similar uses to the SCAQMD for comment and recommendations.

Goal NR14: Improve the sustainability of the community through continued local efforts to reduce GHG emissions and to meet the climate action goals of the State of California.

NR14A – Consider developing and adopting a “Climate Action and Resiliency Plan” for Redding. Such plan, if adopted, should establish GHG emissions reduction goals for 2035 and 2050, include an effective progress reporting timeline, and update the GHG inventory and forecasts at appropriate intervals.

NR14B – Strive to reduce greenhouse gas emissions from new development by encouraging development that lowers vehicle miles traveled (VMT), and discouraging auto-dependent sprawl

and dependence on the private automobile; promoting development that is compact, mixed-use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; improving the jobs/housing ratio; and other methods of reducing emissions while maintaining the balance of housing types and stock.

NR14C – Coordinate with SCAQMD to ensure projects incorporate feasible mitigation measures to reduce GHG emissions and air pollution from both construction and operations, if not already provided for through project design.

NR14D – Consider the appropriate use of CEQA streamlining mechanisms for projects that are consistent with this General Plan and its EIR.

NR14E – Work toward establishing a formal internal process for use in the project review stage to determine and document the following criteria established are in evidence for projects where streamlining is proposed.

Projects subject to environmental review under CEQA may be eligible for tiering and streamlining the analysis of GHG emissions, provided they are consistent with the GHG reduction measures included in this General Plan and its EIR. To ascertain if streamlining the CEQA process is appropriate, the City may review development projects to determine whether the following criteria are met:

1. The proposed project is consistent with the General Plan land use designation for the project site.
2. The proposed project incorporates all applicable GHG reduction measures (as may be documented in the General Plan EIR) as enforceable mitigation measures in the CEQA document prepared for the project.
3. The proposed project clearly demonstrates the method, timing and process for which the project will comply with applicable GHG reduction measures and/or conditions of approval, (e.g., using GHG reduction measures consistency checklist, mitigation monitoring and reporting plan, or other mechanisms for monitoring and enforcement as appropriate).